ELECTRICAL WEST

Southern California is preparing for the advent of power from Boulder Dam early in the Fall. Here is the Victorville switching station on the Power Bureau's 287-kv. line from the dam to Los Angeles. The tall masts are for lightning protection. As the whole electrical industry in southern California marshalls its forces for a sales drive around the slogan, "California's Electrical Age Has Just Begun," Electrical West's editors are preparing a 32-page pictorial insert telling the technical story of this great engineering achievement to be published coincidentally with the first delivery of power.

ULY 1936
RAW-HILL CO. OF CALIF.
PRICE 25c PER COPY

That's the number of electric refrigerators which will be sold this year, in Edison territory alone. Bigger by far than any previous year in the industry . . . more sales, more profits for wide-awake dealers.

We're doing our part with a smashing advertising campaign. Newspapers, radio, billboards, window trims are all carrying the story of electric refrigeration and how it represents the first step toward the modern All-Electric Kitchen.

Whether you get your share of the 50,000 sales is up to you. The market is there—only one-third of the homes in America own a mechanical refrigerator now. Your energy and determination will pull in a profitable share of the two-thirds remaining.

SOUTHERN CALIFORNIA EDISON COMPANY LTD.

7-36

Edison

CALIFORNIA'S *Electrical Age* HAS JUST BEGUN!

ELECTRICAL WEST (with which is consolidated The Journal of Electricity), July, 1936, Vol. 77, No. 1. Published monthly by the McGraw-Hill Company of California, 883 Mission St., San Francisco, Calif. Entered as second class matter at the post office at San Francisco under the Act of March 3, 1879. Additional entry as second class matter at the post office at Los Angeles. Printed in U. S. A. Subscription rate in U. S. and U. S. possessions, and Canada, $2 per year; all other countries $3 gold (thirteen shilling). Single copy, 25c.
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ELECTRICAL WEST

With which are consolidated the "Electrical Journal," the "Journal of Electricity, Power and Gas," and the "Journal of Electricity."

ESTABLISHED 1887

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▼

• PURSUING the subject of human relations as they affect the electrical industry, H. A. Lemmon's third article shows how very small keys will both lock and unlock very big doors. His story of Jim Burleson, an El Paso conductor, is one of the classics of the industry's literature and contains a moral that can be applied today.

•

• TIMED to the accelerated home building program now booming throughout the West, this month's Appliance Sales Guide gives potent sales ammunition for selling an all-electric kitchen. Public interest stimulated by the national kitchen modernizing campaign can be turned into profitable sales through utilizing the information developed by Bill Smith, master salesman, and the editors.

•

• WHEN CERTIFICATES representing one month's bill which were redeemable in appliance purchases were distributed to domestic customers of the Coast Counties Gas & Electric Co., appliance sales in that territory took a real spurt. Final results have been compiled and are published in this issue. They reveal interesting facts on appliance popularity.

•

• BRAINWORK costs money, and its quality is susceptible to environment. Electra's husband wonders why taxpayers don't assure themselves of the quality of the brainwork they purchase, by giving it the environment in which it can do its best work. Why couldn't electricity, he asks, give executives, legislators and judges the conditioned air and illumination in which the best brainwork is done? Bill Jones scores another obstacle to the best performance of our mental leadership—the lobbyist.

•

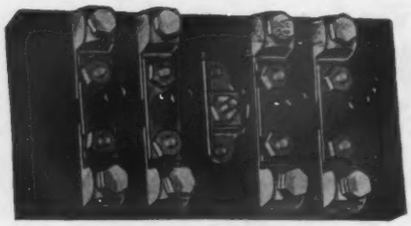
• TINIEST object in an electrical system, and one whose function is purely mechanical, is the meter jewel. Yet on the performance of these minute units depends the accurate determination of output and revenue. How modern methods of jewel inspection and cleaning give rise to improved service are described in the Engineering Symposium. How angle switching allows synchronous motors to "pull in" under increased starting loads, and how a boiler with zero stack loss has been made possible through new electrical design are among other features in this forum for engineers.

•

COMING

• SEPTEMBER will see the publication of ELECTRICAL WEST'S second annual Appliance Sales Guide, expanded to cover practically all appliances and electrical services. Nowhere else can such a concise and comprehensive sales tool be obtained. Dealers and salesmen who found the 1935 Guide so helpful will find this new edition even more useful in supplementing the regular monthly sales stories.

METER TEST BLOCKS
FOR
SELF-CONTAINED METERS



Cat. No. 7304F
Four pole test block

Let Superior Meter Test Blocks increase your revenue by safer, faster and more accurate meter tests.

These Test Blocks, with their forged solderless lugs, lowering installation costs and giving positive contact, are described in Bulletin 364. Ask for it.

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Superior Switchboard & Devices Co.
Canton, Ohio

*Been at it Since 1920

SUPERIOR
REG. U. S. PAT. OFF.

Letters...

We Hide Our Light Under a Bushel

To the Editor:

Sir—I have been much interested in the June, 1936, copy of the *"Electrical West"* with its Convention-in-Print features. From your editorial on page thirty-seven, to the end of the publication, I have found a great amount of very helpful material. I expect to extract many of the thoughts expressed by various contributors and submit to all our employees through the medium of our Employee Information Program. This consists of a weekly bulletin which goes to all of our 2,800 employees.

I also expect to use some of the material of this issue in some of our institutional advertising and general news releases.

My greatest criticism of our industry has been, and still is, that we continually hide our light under a bushel. The general public so little realizes the lofty principles and high ideals of the industry. The public has judged us upon the information it has been given. If, in our opinion, that judgment has been unfair, then the fault lies not with the judges but with us for not properly presenting our case.

At every gathering of the industry, in our conventions-in-print and in our daily intercourse with each other, we hear the statement made, "I believe in the fundamental fairness and justice of the American people." When I hear or read that statement, my reaction is an intermingling of acquiescence, compassion and impatience. Acquiescence because I agree with the thought expressed; compassion because I pity the blindness of those (managements) "who will not see" after the many sad experiences and in view of the handwriting so plainly written on the wall; impatience because of the continued dilatoriness of the industry to give this subpect the attention it deserves and for which it cries so loudly.

I am continually astounded at the apathy of the industry in view of the repeated statements of its own leaders and in view of the repeated powerful editorials on this subject by such men as yourself, Mr. Morrow, Mr. McGraw and many leading industrialists outside our own business. More potent than those exhortations is the daily proof—unfriendly mass opinion—of the industry's failure to constantly personalize and humanize itself and its actions.

My own company, under the farsighted leadership of Mr. Griffith, is leaving no stone unturned to do this thing. In the words of your own wonderful chief, Mr. McGraw, we are trying to "humanize" our organization, our policies and our service.

So keep up your good work through the influence of your publications. The electrical industry so needs disciples who will go into the world and preach the gospel which alone can save this industry.

LAURIN E. HINMAN,
Executive Assistant.
Portland General Electric Co.
Portland, Ore.

•

To the Editor:

Sir—I am enclosing my check for renewal of my subscription to *Electrical West*.

I have just examined the June number and it is certainly a wonderful edition—full of interesting features and a real credit to your organization.

H. C. WEISENBURGER,
Electrical Inspector.
Watsonville, Calif.

DEPEND UPON G-E FUSE PROTECTION

Use G-E Fuses of proven reliability to protect equipment and property. There are four types available: G-E N.E.C. Renewable or Non-renewable Cartridge Fuses; G-E Textolite or Pyrex* Top Fuse Plugs. All these types are designed to give maximum protection.

*Reg. U.S. Pat. Office.

GENERAL ELECTRIC

WIRING DEVICES

APPLIANCE AND MERCHANDISE DEPT., GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONNECTICUT

FACTS UNDERLIE FIGURES

● It may be significant that more than 430,000 miles of A. C. S. R. has been erected in the United States. And that over 70% of all transmission line mileage at 220 kv. or higher is A. C. S. R.

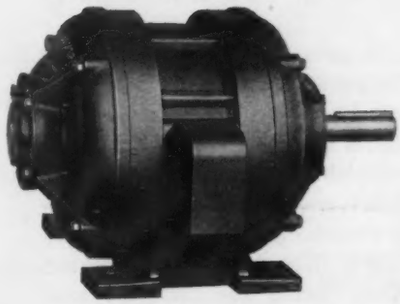
The real significance of these impressive figures lies in the actual savings which make such figures inevitable. Those savings are axiomatic. Longer spans, permitted by the better strength-weight ratio of A. C. S. R., slash costs. A. C. S. R. likewise cuts corona loss. Flash-over hazard is greatly reduced, because arcs on Aluminum are unstable and because the steel core furnishing 50-60% of the strength is always sheathed by the Aluminum strands.

To help you get maximum results and maximum economy from A. C. S. R., we furnish thorough engineering co-operation. The most recent evidence of this service is the development of a complete vibration dampening system, using Armor Rods and the Stockbridge damper. Feel free to make use of this service. There is no obligation. ALUMINUM COMPANY OF AMERICA, 2132 Gulf Building, Pittsburgh, Pennsylvania.

ALUMINUM COMPANY OF AMERICA

Wanted . . .

A MOTOR THAT CAN *TAKE IT!*



THIS wasn't a request by a customer, it was a demand made by our own organization, thirty years ago.

The machinery that we were building was designed for the toughest jobs and was easily equal to them. But we required a motor that could take the beatings that many of these applications required and measure up to the standards that Allis-Chalmers engineers demanded.

So, through our electrical department, working in conjunction with all the highly specialized knowledge of all our various departments, we developed a motor distinctly designed for severe industrial duty. A motor sturdy enough to be a counterpart to our own vast line of rugged power driven machinery.

That motor met the exacting demands of our engineers thirty years ago. For thirty years engineering experience and knowledge have been advancing rapidly and each step of that advance, whether minute or revolutionary, has year after year painstakingly been incorporated in Allis-Chalmers Motors. That is why they are the sturdiest motors on the market—bar none.

Today Allis-Chalmers Motors are the most profitable motor buy on the market because their great mechanical strength reduces maintenance costs to the minimum and extends their life beyond that of all less sturdily constructed motors.

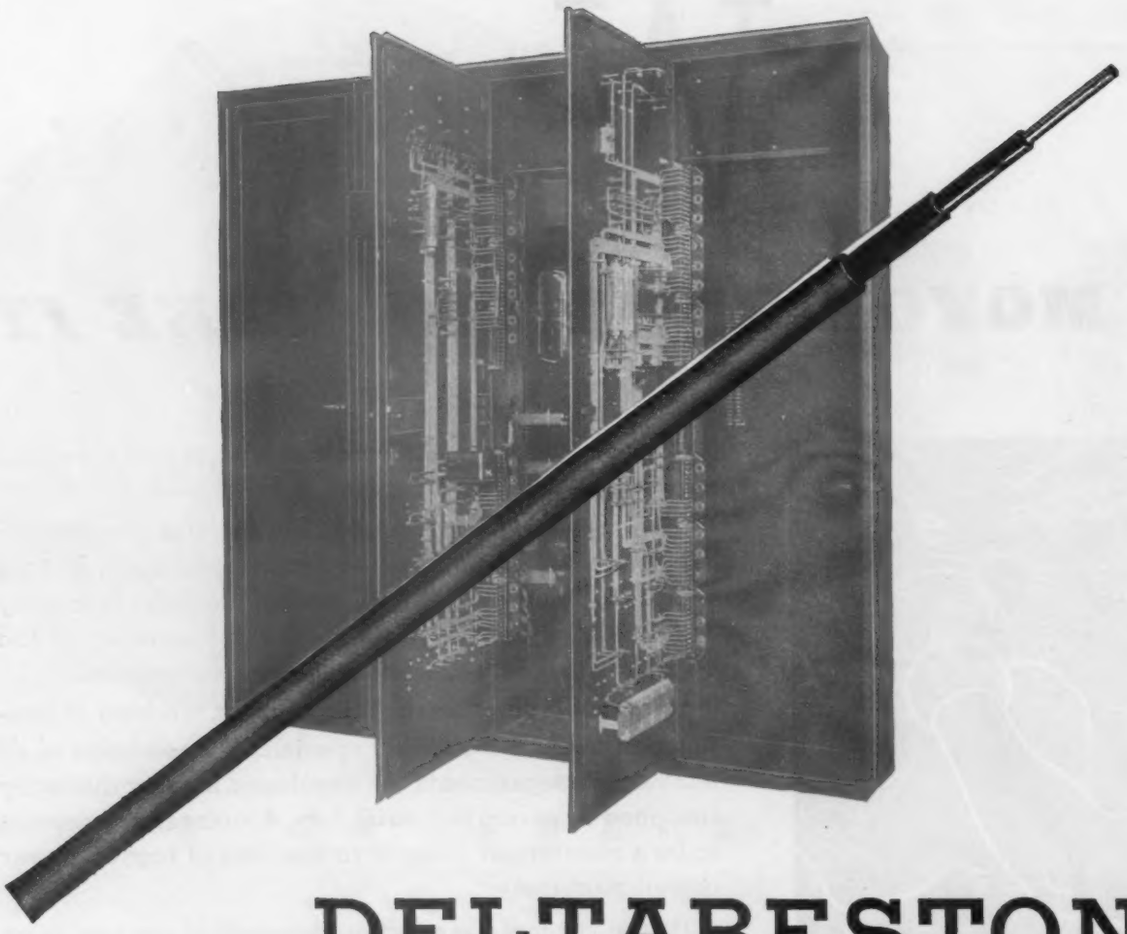
The Allis-Chalmers Mfg. Co. builds standard motors of every type from 1 hp. up—also motors for special application

MOTOR DIVISION

ALLIS•CHALMERS

FOR EVERY PURPOSE

MILWAUKEE WISCONSIN



DELTABESTON

Is Designed for Modern Switchboards

UNEXCELLED INSULATION RESISTANCE . . . DIELECTRIC STRENGTH . . . WORKABILITY

Deltabeston G-E Type Switchboard Wire is designed for wiring all switchboards . . particularly modern steel panels.

Over conductor and varnished cambric is spun a felted wall of PURIFIED asbestos. By an exclusive Deltabeston process, all inorganic materials are removed. This asbestos is far purer than any other. Overall is a woven cotton braid with a flame-proof and moisture-resisting finish.

The materials and process of manufacture make Deltabeston Switchboard Wire superior to others. It possesses high insulation resistance, dielectric strength and durability. It is easy to work. Conductor strips clean . . . insulation remains concentric when bent. Deltabeston Switchboard Wire presents an unusually compact, neat appearance on panels. For new or replacement work, specify Deltabeston PURIFIED Asbestos-insulated Switchboard Wire. Send for samples and full information. Write Section Y-677, Appliance and Merchandise Department, General Electric Co., Bridgeport, Conn.

GENERAL ELECTRIC

DELTABESTON WIRE AND CABLE

APPLIANCE AND MERCHANDISE DEPARTMENT, GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONN.

HOW G-E PYRANOL TRANSFORMERS Cut Total Installed Transformer Costs

THE 1935 revision of the National Electrical Code permits the installation of noninflammable, nonexplosive G-E Pyranol transformers indoors with many of the restrictions applying to oil-insulated transformer installations eliminated. In each of the applications pictured, G-E Pyranol transformers offer an opportunity for savings in total installed transformer cost. Complete information is contained in Bulletin GEA-2048, "G-E Pyranol Transformers." General Electric, Schenectady, N.Y.

In Vaults—under sidewalks, streets, or in buildings—such as are common in network systems, G-E Pyranol transformers afford savings because they are smaller. Thus they permit smaller, less expensive vaults, and less expensive methods of connecting the feeders.

In Buildings—apartments, offices, theaters, hotels, hospitals, and schools—savings are realized because expensive fireproof vaults are unnecessary for Pyranol transformers. A simple metal grill meets the requirements of the National Electrical Code.

Transportation—in locomotives, railway cars, docks, and ships, G-E Pyranol transformers are particularly applicable since safety requirements can be met with minimum expense. Pyranol transformers for heating and lighting railway cars have been operating for more than three years with remarkable service records.

In Industry—savings are often possible, because Pyranol transformers can be installed immediately adjacent to the load, eliminating long runs of secondary copper and improving operating characteristics. Vaults are unnecessary; valuable floor space can be saved. Twenty-three per cent in total installed cost was saved in a recent installation.

300-31

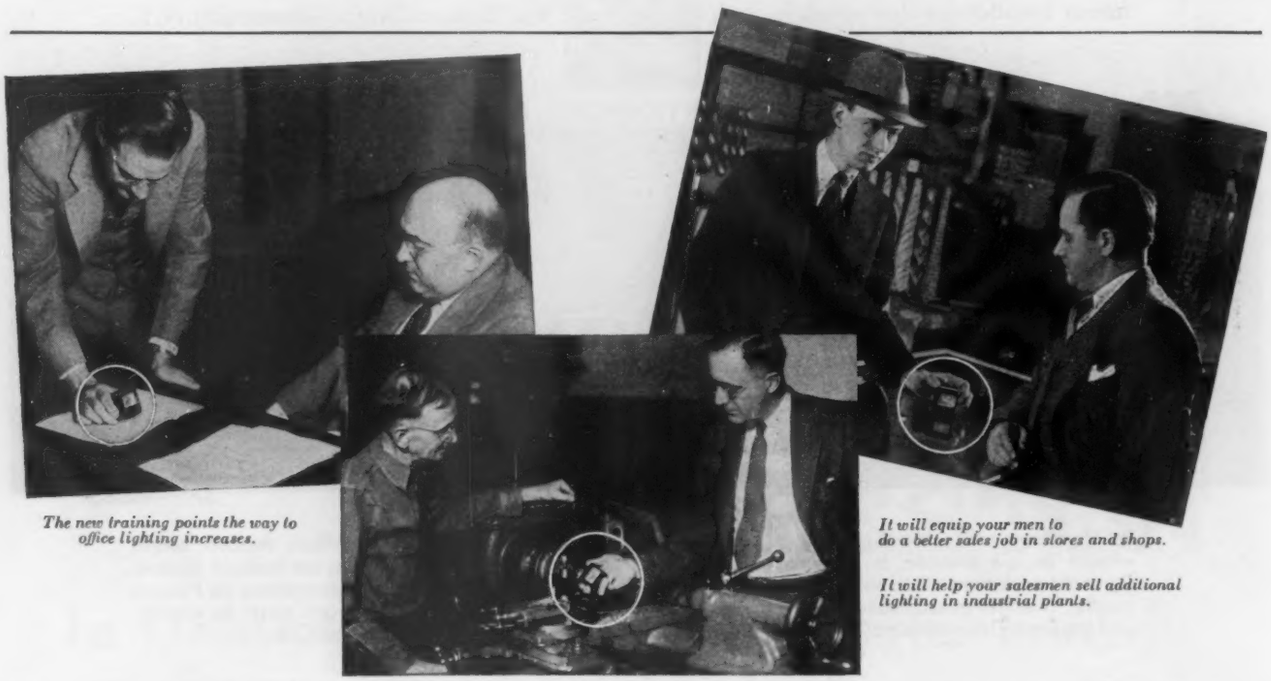
GENERAL ELECTRIC

General Electric announces

NEW SALES TRAINING IN COMMERCIAL AND INDUSTRIAL LIGHTING

(Prepared in cooperation with LaSalle Extension University)

READY FOR UTILITIES AUGUST 1st



The new training points the way to office lighting increases.

It will equip your men to do a better sales job in stores and shops.

It will help your salesmen sell additional lighting in industrial plants.

The tremendous success of the G-E Home Lighting Advisor's sales training in the past year brought requests from utilities the country over for a similar training for commercial and industrial lighting salesmen. General Electric and LaSalle Extension University again studied the demand, conducted exhaustive research in the whole field of commercial and industrial lighting sales, and . . . based on this experience . . . produced the new sales training which will be available August 1st. As with the Home Lighting Advisor's, Supervisor's, and Retail Sales training courses, the new training presents the fundamental facts in a new light. It approaches lighting sales from a fresh point of view, is entirely a sales course—no technical details—and should produce material sales increases in light for selling, seeing, and production.

The new training, consisting of eight assignments, will be available for all utility men dealing with commercial and industrial lighting, jobber's lighting men, and manufacturers' salesmen.

Packed with refreshing new ideas, it should prove as valuable to experienced employees as to newcomers in the business of selling lighting.

For cost and further information, write General Electric Company, Dept. 166, Nela Park, Cleveland, Ohio.

NOTE: More than 1000 Lighting Advisors have been trained by the General Electric-LaSalle Home Lighting Training Courses in the past year. These valuable courses are still available and are now being supplemented by this equally valuable and practical training material in the commercial and industrial fields.

GENERAL ELECTRIC

Light-Sensitive Cell

The G. E. Light Meter plays an important part in successful commercial and industrial lighting sales. For quickly measuring the amount of light, this new scientific instrument is invaluable. Every commercial and industrial lighting man should carry one.

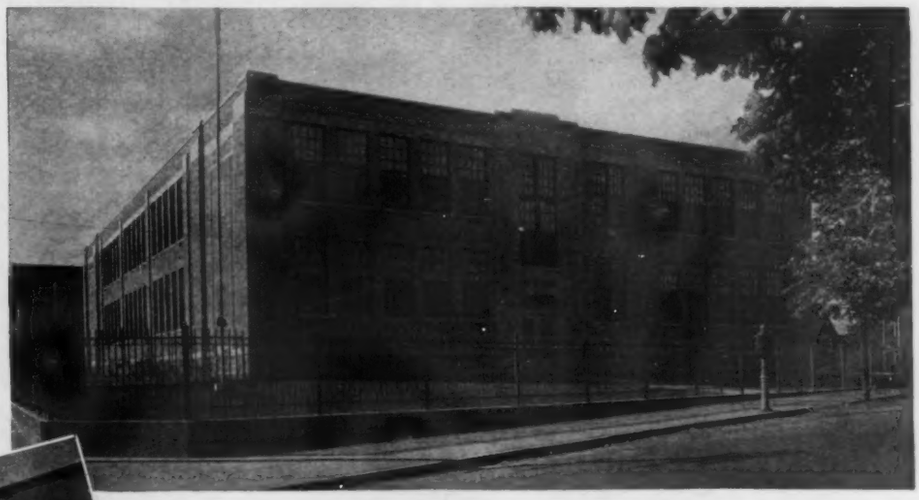
G-E LIGHT METER

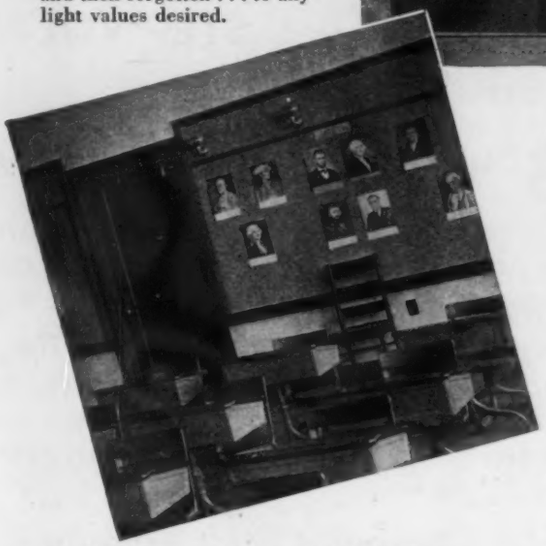
ANOTHER SCHOOL with classroom lighting

Automatically Controlled

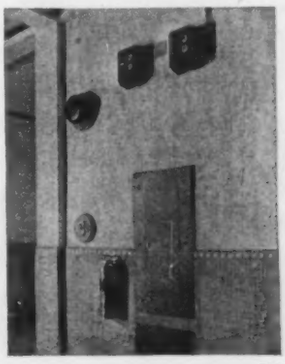
Close-up of Photronic Relay Cabinet. Note "on" and "off" relays which are easily set . . . and then forgotten . . . to any light values desired.

No one has to "think" to turn on the lights in any classroom in the new Highland School at Lynn, Mass. On dull afternoons, or even during storms, the correct amount of illumination is assured by WESTON Photronic Control. Architect—G. A. Cornet, Lynn, Mass.





Note the WESTON Photoelectric Cells on rear wall . . . tiny, life-time sentinels which make sure that sufficient light reaches desks even in darkest corners. In this case, two cells are used, one operating each bank of lights. However, one cell operating all lights, is general practice.



WESTON Photronic Relay Cabinets mounted on walls in outer corridor.

Proper illumination levels always maintained by dependable, inexpensive WESTON *PHOTRONIC CONTROL

The *simplicity* and *dependability* of WESTON Photronic Illumination Control have caused a rapid swing toward this automatic method of maintaining interior lighting at proper seeing levels. This new Highland School is typical. Should the light reaching desks even in farthest corners of the classroom at any time fall below a predetermined "proper seeing level," the electric lights automatically turn on. If daylight is restored to this level, after a storm, for example, the lights automatically turn off.

The *simplicity* of Photronic Control is well illustrated by this installation. Note the small relay cabinets mounted inconspicuously in corridors . . . away from the classrooms. Note the absence of amplifying or other auxiliary equipment. And the *dependability* of Photronic Control is evidenced by its widespread adoption for street lighting, airway beacons, lighthouses, and for many interior and exterior needs. The complete story is available to utilities in bulletin form. Send for your copy . . . Weston Electrical Instrument Corp., 577 Frelinghuysen Ave., Newark, N. J.

*PHOTRONIC — *a registered trademark designating the photoelectric cells and photoelectric devices manufactured exclusively by the Weston Electrical Instrument Corp.*

WESTON *Instruments*

PACIFIC COAST REPRESENTATIVES

Eicher & Bratt,
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Look Into this!

Increased Revenue

Improved Regulation

with

TYPE AFR 5/8% STEP VOLTAGE REGULATORS . . . . .

SELDOM is there such a reason for capital expenditures. Remove the cause of complaints by improving voltage regulation and at the same time increase the revenue.

Type AFR Step Voltage Regulators, pioneered by Allis-Chalmers, enable you to regulate lines never before considered economically feasible.

Allis-Chalmers Step Voltage Regulators provide 5/8% steps and permit setting the contact making voltmeter to obtain the best possible regulation and the maximum revenue.

The Type AFR Regulator is tried and proven—a pioneer in its field, constantly refined and improved but basically the same as the first unit built. Simple, mechanically substantial, the Type AFR Regulator incorporates every sound engineering feature desirable for step-voltage regulation.

228 kva, 13,200 volt three-phase, AFR Regulator installed on the Pacific Coast.

ALLIS-CHALMERS

Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, U.S.A.

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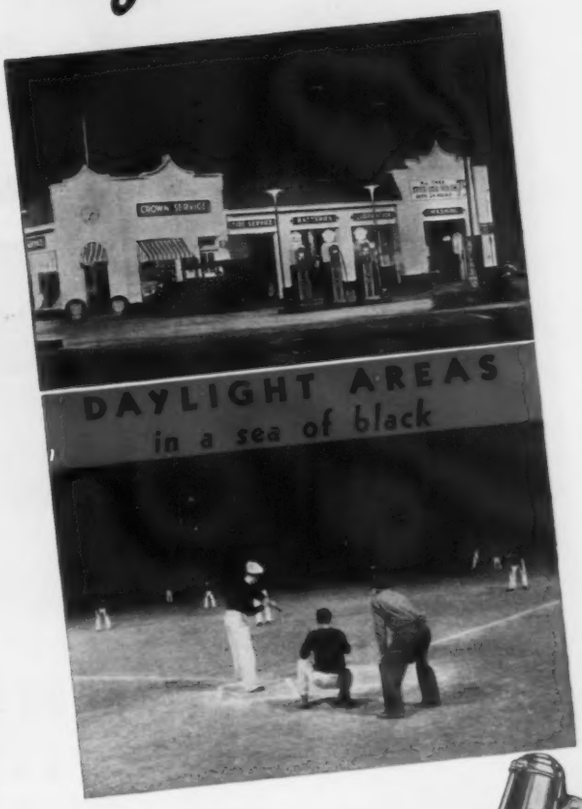
Yours for the asking

Light

on all Lighting needs



TO HELP YOU SELL lighting where lighting is needed is the purpose of Benjamin's advertising and technical Bulletins. Why not make full use of this literature in presenting the Better Light Story to your Service Station, Industrial and Playground prospects?

"What Every Service Station Operator Should Know About Lighting" is a manual which we will send to your prospects. *"The Benjamin Manual of Layouts for Nightsports"* gives complete layouts and other data on playground floodlighting. *"6 Tested Ways to Make Lighting Pay"* deals with the improvement of industrial lighting. Write Benjamin Electric Mfg. Company, San Francisco, Cal., for those you haven't on file—or use the coupon below.

FLOOD LIGHTING BY

BENJAMIN

TRADE MARK

Benjamin Electric Mfg. Company
Dept. EW, San Francisco, Cal.

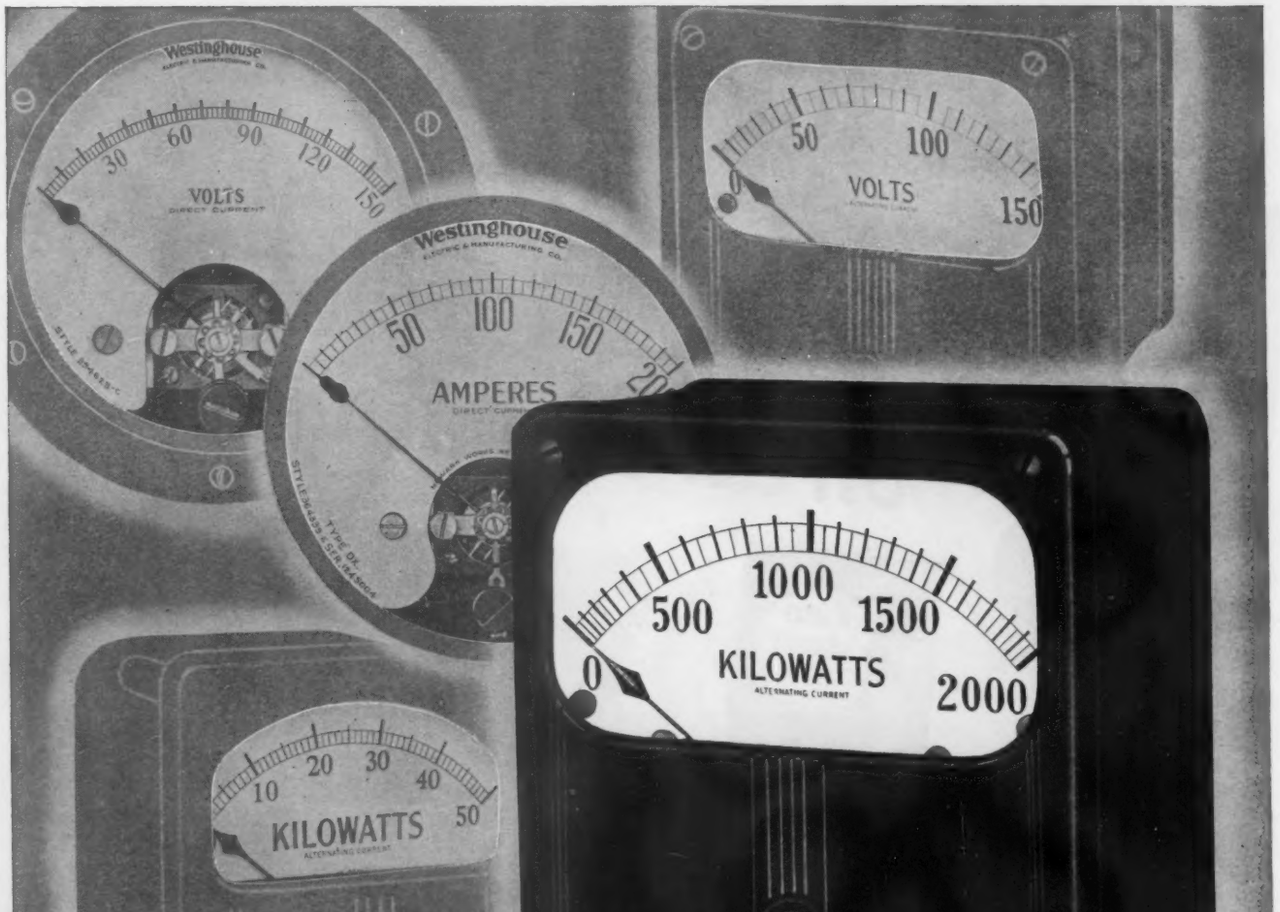
Please send literature checked below:

☐ "What Every Service Station Operator Should Know About Lighting" ☐ "6 Tested Ways to Make Lighting Pay"

☐ "The Benjamin Manual of Lighting Layouts for Nightsports."

Firm Name_____ City and State_____

Street Address_____ Per_____ Title_____



WESTINGHOUSE INSTRUMENT QUALITY

QUALITY — WESTINGHOUSE — 1886 1936 — GOLDEN JUBILEE — METERS INSTRUMENTS RELAYS

★★ means—**1** unexcelled accuracy, **2** steadfast calibration, **3** clear, jet-black marking on long scales, **4** conservation of switchboard space, and **5** artistic cases that add extra distinction to your switchboards.

No logical reason exists for accepting lower quality.

Ask for Switchboard Instrument Catalogs 43-205, 43-320 and 43-330. Room 5-N, East Pittsburgh, Pa. J 40018

Westinghouse *Switchboard Instruments*

AMMETERS ★ MILLIAMMETERS ★ VOLTMETERS ★ WATTMETERS ★ POWER FACTOR METERS
FREQUENCY METERS ★ SYNCHROSCOPES ★ VAR METERS ★ RADIO FREQUENCY AMMETERS

ELECTRICAL WEST

[*Devoted to the economic production, transmission and distribution of electric power and its application to industry, commerce and the home in the Pacific Empire, and to the sale and distribution of electrical utilization devices, equipment and appliances in that area*]

July 1936

Very Small Keys Will Lock Very Big Doors

By H. A. LEMMON
Sierra Pacific Power Co.
Reno, Nevada

VERY small keys will *lock* very big doors.

Occasionally the executive of a power company leans back in his chair, smiles benignly and boasts that the relations of his company to the public is fairly satisfactory. "Yes," he will say, "I know that a lot of communities have been disturbed by the political agitators and it seems to be in the air, but eventually the smoke clears away and nothing serious will have happened to us."

Complacency! Today the mountain side is dotted with peaceful homes and productive farms. Tomorrow those homes and those farms are covered with lava.

An apparently quiescent community —any community—is seething with discontent. Sometimes it has not as yet come to a boil.

It was always so, but now the people have suddenly become articulate. In every community inherent antagonism to the utility is approximately 70 per cent; 20 per cent indifferent. In the very nature of things it must be about those percentages.

Perhaps the best we can do is to endeavor to keep it dormant. We can hardly expect people to love us. They may be persuaded to tolerate us. It is contrary to human nature for free people to have affection for concerns which seek to impose upon them rules for their conduct. Prohibition clearly demonstrated it; the New Deal eventually will demonstrate it. The power company, the postoffice and the bank all have rules which their employees freely and unintelligently quote and misquote. All of these are surrounded with the atmosphere peculiar to monopoly, and their clerks clearly demonstrate it.

Frequently comes the statement that "so-and-so" who heads the power company or one of its important departments, is personally a splendid citizen and a splendid man, but the company . . . . . ! This imaginary distinction between the practices of the company and the personality of the president, the manager or the other executives, is common.

Some one has said that "an organization is but the shadow of a man." It is true. The company and its employees are but the shadow of their chief. They do and think very much as he does and thinks. It couldn't be otherwise. He is responsible for their continued employment. They can wail with the unfortunate damsel of the song "You made me what I am." They are quick to detect hypocrisy, and notwithstanding his personal charm, they know that behind those agreeable attributes are those inner things which make the company detested—insincerity.

Up and down the line employees quote rules of the company as being final instead of saying, "Mr. Smith, the executive, says so-and-so." Frequently instead of promptly saying "no" he stalls, that he will "take the matter up with my directors" or perhaps he also quotes the "yardstick"; "I wish that I might do this or that, but the Public Service Commission approves (or makes) our rules and we have to abide with them." Passing the buck all along the line. No wonder the executive is a fine fellow and his company is simply awful.

No executive or department head who is honest with himself will deny that he feels superior to 80 per cent of his customers and that he is really convinced that his sphere is with his so-called "equals." He knows that his position doesn't depend upon the same careful and painstaking investigation (and the same adjustment) of the complaint of the woman who is worried over a 20-cent increase in her bill of $1.80 that he gives in the case of his banker and golf-playing friend whose home pays $23. He will hardly even pretend that he will give exactly the same weight to service complaints coming from these two sources. On the other hand in the case of the latter, he will probably have half of his service department out on the job in twenty minutes; no matter how much disturbance to schedules and efficiency it causes. He will personally direct the effort. The other complaint will merely feed into the hopper of routine.

Snob! Perhaps. Of course he has

many times, and on many occasions, prated tritely about the integrity of service and quite likely has hypnotized himself into the belief that it is actually his fetish, but his real self has been translated and transmitted to that service department, to all his staff and down to the telephone girl and the complaint clerk. Step by step is demonstrated the inferiority complex on the part of the membership of his organization as it toadies to those on a little higher plane, and its inevitable superiority complex toward those lower.

Every chief executive believes in good public relations—very few live them.

Keen competition would make a very noticable difference in the manner in which various customers are treated. Some one has said that "God must love the humble; He made so many of them."

Yet very small keys will *unlock* very big doors!

If anyone doubts this let him hear the story of Jim Burleson*:

What is Service?

*** The conductor to whom Mr. Lemmon refers was described by him in the following account, printed many years ago in The Stone and Webster Journal. Like Elbert Hubbard's now famous "*Message to Garcia*," this little essay on Service was reprinted in thousands of copies, translated into many languages, including Japanese, and circulated throughout the world of business. By Mr. Lemmon's permission it is again reprinted here to conclude this searching and thought-provoking article—**

PERFECT SERVICE is electric energy always available without interruption at a constant standard voltage.

From El Paso we operate a street car line into Juarez, a little city just across the Rio Grande in Mexico. About ten years ago relations between the two countries were somewhat strained. Our army had dropped a few shells into the Mexican city, and if there were any Mexicans who were lying awake nights consumed with love for their American cousins, they very effectually concealed that passion.

Operating our street cars across the international bridges was attended with difficulty—with adventure, in fact our cars had a way of losing their windows on the journey, and our conductors of coming back without any cash, but plenty of torn clothes and black eyes and explanations. There were reasons why we determined to keep going, and selecting car crews was quite an important task.

Employed on the El Paso lines was a conductor, named Jim Burleson. Burleson hadn't attracted any particular attention. He was just an ordinary, quiet, peaceable chap, with a dry sense of kindly humor, who attended strictly to the business of the company and made it his own business. Someone suggested placing Jim on the Mexican line. He took it as all-in-the-day's work.

He didn't know much Spanish, but he learned to say "Gracias Senor" and picked up a few more words, until he could exchange a sentence or two of amiable banter with every frowsy senorita and dirty Mexican kid who ventured to get on his car. Mexicans, and Americans, they all looked alike to Jim, and all received the same kindly treatment. He came home with the cash, with all of his windows intact and with no black eyes, and because he did these things he just dropped out of sight, as it were. No one paid any attention to him. He didn't figure in the day's news one way or the other.

And then one day Jim Burleson contracted pneumonia. Forty-eight hours later he was dead. The newspapers of El Paso recorded Jim's passing away in a four-line conventional notice. He had lived and he died in a little shack near the car barn and he was without surviving relatives to arrange the details of the last ceremonies. A group of his fellow employees got together and appointed themselves pall bearers. They went even further and engaged a carriage to convey the minister to the cemetery.

At the appointed hour the funeral started, but in some respects not quite according to the original conception. Instead of merely a few of his fellow workmen and carriage containing the minister, there appeared upon the scene and in the procession the old, grey-haired, grey-bearded Mayor of Juarez, who had sworn never again to set foot on American soil; his City Councilmen, a delegation of Mexican Customs officials, a group of other Mexican Federal officials, and a little escort of Mexican soldiers (in civilian clothes because of the strained relations and because of the international law). And there also was the Mayor of El Paso and his fellow members of the City Council, representatives of the United States Customs Service, an un-official representation of officers and soldiers from Fort Bliss, and carriage after carriage filled with the substantial citizenry of the bustling Texas city. And even this was not all. There were over a half-mile of Mexican people on foot and in rented, broken down, dilapidated carriages, who, for the time being, had set aside their hatred of the Gringo. Among them were the school teachers and mothers of Mexican children; and, perhaps, greatest tribute of all, three huge wagon loads of dirty, ragged, unkept Mexican school children themselves.

Every school in Juarez was closed the entire day of Jim Burleson's funeral; every business house was closed that afternoon; and in the little old church for which Juarez is far-famed, throngs of worshipers crowded in from morning until away late in the night, offering prayers for the repose of the soul of a man who didn't measure service with a voltmeter.

Engineering Symposium + + +

[A monthly forum in which engineers will present and discuss their problems, this department is dedicated to advancing the art of power generation, transmission, distribution and utilization]

Modern Loads Require Improved Methods of Jewel Inspection

P. E. ALGER
Portland General Electric Co.
Portland, Oregon

THE use of electric clocks, bell ringing transformers and radios, which, while they are individually small, total up to a considerable load. For the most part this twenty-four hour load represents quite a loss if not metered. Due to this fact and because it is becoming common practice to install meters of ten or fifteen ampere capacity on residence loads, it is imperative that these meters be as sensitive to light loads as possible.

Ability of a meter to register on very light loads depends on two things: (1) The power required to drive the recording mechanism, and (2) the friction in the bearings. The bearings consist of a top ring bearing which holds the shaft in alignment, and a bottom bearing consisting of a steel pivot on the shaft which runs in a diamond, sapphire or synthetic sapphire cup jewel. This supports the weight of the moving element. Upon the condition of this bearing depends the sensitivity of the meter.

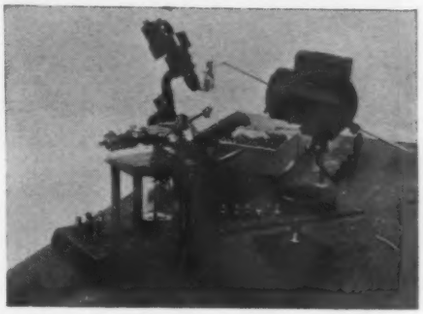
It is common practice to examine meter jewels at the time of the meter test by means of a sharp needle. This method is very questionable because the average meter tester does not appreciate its importance and uses any needle, pin, or even the point of a knife, if by chance he has lost his needle. Even had his needle been sharp the efficiency of the test would depend upon his personal touch and judgment.

Recent research has conclusively shown that many defects which materially affect the running of a meter cannot be detected by means of the needle test. Many companies are now changing all meter jewels and pivots at the time of testing the meter, and returning them to the meter laboratory where they are examined under a microscope.

New Equipment Employed

About two years ago the Portland General Electric Co. purchased a Spencer Binocular Microscope, and since that time all jewels have been examined by its use. The technique employed required the development of special fittings and cleaning apparatus, which have proven very satisfactory, and it is by the intention in this article to give such information and descriptions as might help any one who wishes to take up this work.

Proper lighting is of the utmost importance, for without it many defects, especially small pivot worn spots, are not visible. The lighting system consists of a small 200-watt spot light and a prism which directs the light beam into the cup of the jewel. A special holding device is used which allows the jewel to be turned or tilted in any direction or angle, and still be in focus so that the reflection of the light beam can be moved over the entire surface of the jewel.



Complete equipment for jewel inspection and cleaning, including binocular microscope, spotlight, and holding and cleaning devices

This latter device, as shown in the accompanying sketch, consists of a gimbal joint arrangement. The shaft supporting the outer ring is free to turn in the supporting bracket, and the inner ring is pivoted in the outer ring at right angles to the axis of the shaft. The inner ring is threaded to receive adapters which fit the different types of jewels, and are so made that the cup of the jewel is in line with the axes of the shaft and pivots and always is in focus in all positions. This arrangement is very important as it allows every part of the surface of the jewel to be brought under the spot of light.

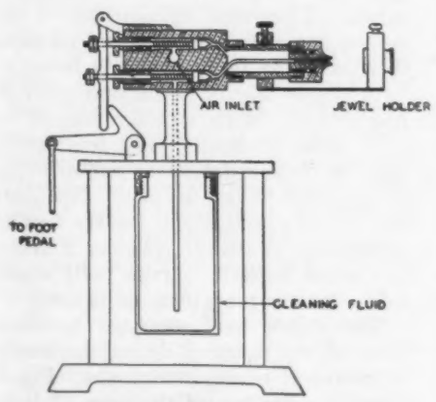
Good Lighting Important

The secret of being able to see the defects in a jewel is good lighting. Good lighting does not require a very intense light, but the operator should be able to move it to any part of the jewel. When a spot light in combination with a prism is used, the image of the aperture of the lamp will be reflected from the surface of the jewel, and it is this image which it is possible to move over the surface of the jewel by means of the gimbal arrangement.

The slightest pivot wear can easily be seen as shown in Fig. 1, and scratches, cracks and other defects made visible that are not apparent with a plain light, or when the jewel is held in one position, or rotated in a vertical position.

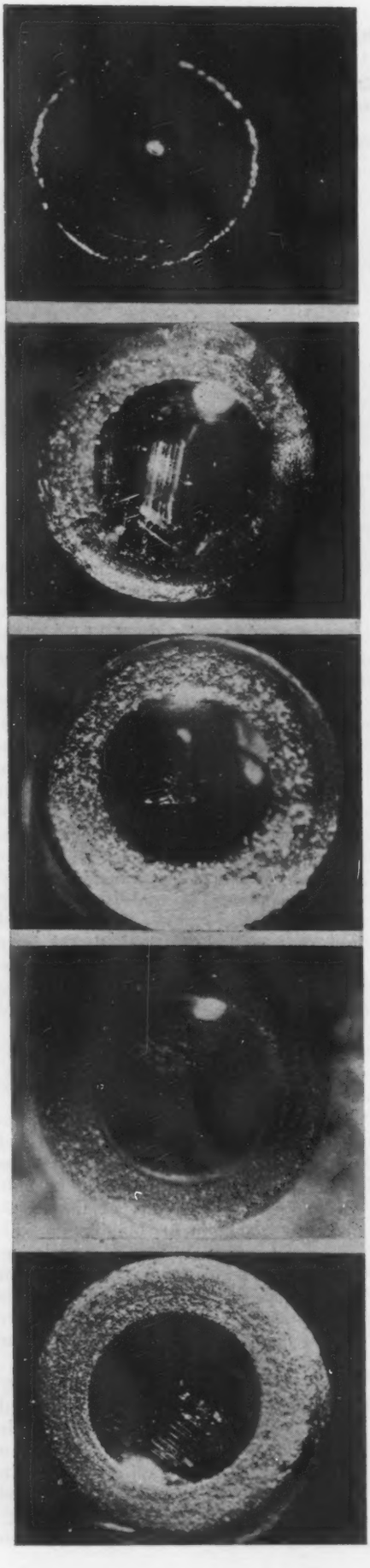
The jewel cleaner is a spray gun so

Sectional elevations of jewel holder and cleaning equipment for use with the binocular microscope



JEWEL CLEANING EQUIPMENT

JEWEL HOLDER WITH GIMBAL JOINT



From top to bottom: Fig. 1—pivot wear illuminated by spot of light, Fig. 2—characteristic markings of natural sapphire, Figs. 3 and 4—pressure parting lines, Fig. 5—pressure parting lines and polish scratches

constructed that air alone, or air and cleaning solvent may be blown into the cup of the jewel. It might be possible to adapt the ordinary spray gun used for painting by making an attachment to hold the jewels in front of the nozzle. Carbon Tetrachloride was used first, but due to objectionable fumes and corrosive tendencies Propolene Dichloride was substituted and gives very satisfactory results. Compressed air from the shop supply is used, but it was found necessary to filter it in order to eliminate moisture and dust.

The filter was made from a three foot length of 3-in. pipe in which is placed about 3 or 4 inches of cotton at the top The rest was filled with fine steel wool. The air supply passes down through a ¼-in. pipe to the bottom, then up through the steel wool and cotton and out at the top. A small drain cock is placed in the bottom to drain off any moisture that might accumulate.

It is not necessary to clean all jewels before examination, as large pivot worn spots and badly damaged jewels can easily be seen without cleaning, and only those that seem to be good (or in which defects cannot be seen) are cleaned; thus saving much time and cleaning solvent. Figs. 9 and 10 illustrate a jewel before and after cleaning.

The procedure of examination is as follows: The jewels are sorted and put in boxes, then adapters are placed in the cleaner and microscope to suit the particular type of jewel to be examined. A jewel is placed under the microscope and if found to be defective it is discarded. If no defects are apparent it is cleaned by first breaking up the crust of dirt with an orange wood stick, such as is used for manicuring purposes, and then put in the cleaner and given a very short blast, about 1/5 second, which usually thoroughly cleans and dries its surface. It is then again examined and if found to be perfect returned to the Meter Department for further use. In this way 100 to 200 jewels may be examined per hour, depending on the type of jewel.

Defects Classified

The difficult question is to determine just what is a serious defect and how much it affects the registration of a meter. In order to determine the effect of pivot wear 30 jewels and pivots were taken from meters and classified as slightly, medium and badly worn, and tested in the following manner: A meter was set up, the dial removed and top bearing cleaned so that all possible friction was eliminated. A new jewel and pivot was put in the meter and several tests made to establish a standard for the new jewel and pivot. The new jewel and pivot were then replaced by one of the worn jewels and pivot and several runs again made. The results seem to indicate that the error is proportional to amount of pivot and bearing wear as shown below:

10 jewels and pivots very slightly worn averaged.....99.78%
10 jewels and pivots medium wear averaged 99.63%
10 jewels and pivots very badly worn averaged 91.19%

The load used was one ampere on a ten ampere meter. At five per cent load the percentage of error no doubt would be greater.

A metal to metal bearing is usually better after being run in, but in the case of jewel bearings, such as are used in electric meters and instruments, the reverse is true. The surfaces of a jewel bearing are very highly polished and as long as these surfaces remain unbroken the bearing will run with a minimum of friction, but if there are cracks, scratches, or other flaws in the jewel which present edges or corners causing abrasion of the pivot, or causing small particles of the jewel to be broken off by the turning of the moving element and become imbedded in the steel pivot, cutting will take place, which increases rapidly, as more surface and grinding material are presented to the pivot.

Although a flaw in a jewel may seem very small it should be remembered that if put in a meter it will not again be examined for the testing period. This may be one to five years, and should it happen to be a meter which runs continuously small defects may cause considerable loss.

Concerning the amount of magnifying power best suited to this work, is a matter of personal opinion, but if the defects are to be seen and judged as to their effect on the jewel, it is better to have ample magnification and good illumination. With a magnification of only eight diameters very few jewels will be found defective, as only the greater defects can be seen. Not only the cost of examination, but the loss in registration caused by placing a defective jewel back in service will result unless greater magnification is used.

The writer has attempted to show some of the common defects in jewels by means of microphotographs. Fig. 1 illustrates the use of the spot of light previously mentioned, and clearly

shows the pivot wear in the bottom of the jewel, and it also shows a second pivot wear just in the edge of the spot of light. If the light were moved it would show a series of pits which are not now visible. Fig. 2 shows a natural sapphire jewel. The broad bands and smooth lines, and stippled patches are characteristic of the natural sapphire, and appear in many but not all jewels and are not considered detrimental. The small crescent in the center is a pivot wear, and if the spot of light were moved over, it would appear as a complete circle. The fine parallel lines near the white spot are known as pressure partings and are serious as they are the beginning of the breaking down of the surface of the jewel, (as shown in Figs. 3 and 4.) In Fig. 5 pressure parting lines are clearly shown, also the fine curved lines which are polish scratches that were not completely polished out when the jewel was made. These pressure partings appear at first as very fine smooth lines, then cracks develop from them, and finally the surface breaks completely down, as shown in Fig. 6. In nearly every case a break in the surface is accompanied by these pressure parting lines.

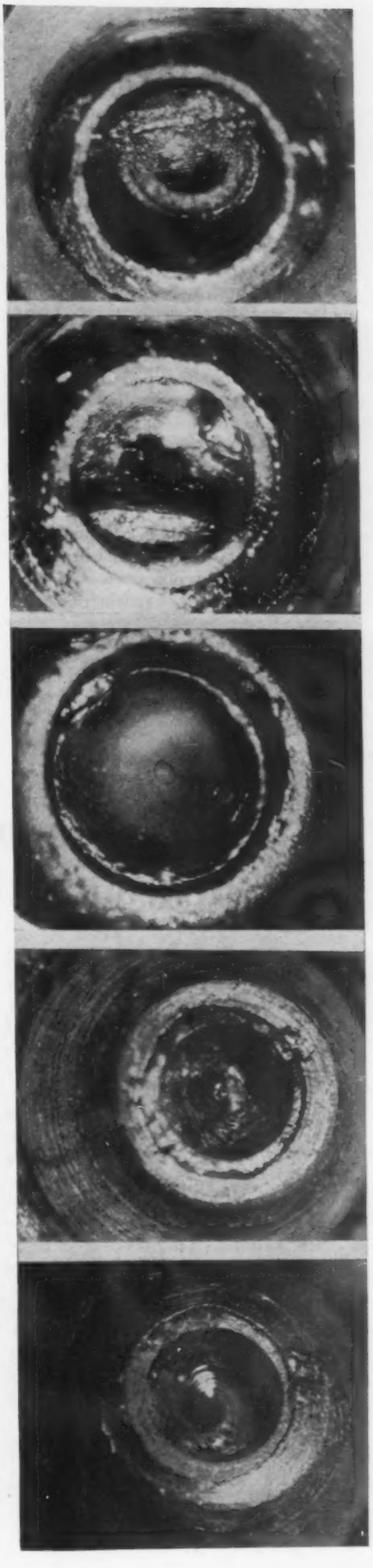
Fig. 7 shows a badly cracked jewel in which pressure parting lines are shown parallel to the crack. In Fig. 8 the effect of heavy load on a.c. meter bearing is shown. The pull of the meter element and the braking effect of the magnets cause a side thrust which cause the pivot to wear a series of pits, or a groove in the side of the jewel.

Examination Reveals Interesting Data

At the present writing the P. G. E. Co. has examined 31,973 jewels. Two types of bearing are in use on the system, the pivot type with one jewel and a steel pivot and the ball type with two jewels and a steel ball. These can be further subdivided into natural and synthetic sapphire jewels. Since this method of inspection has been in use for only two years and the bearings examined can not be classified as to previous life or condition and since the bearings may have been damaged by the previous method of examining the bearings using a needle, it appears rather premature to draw any conclusions. Nevertheless certain trends have been noticed which are offered to assist as much as possible in the development of the ideal meter bearing which everyone is seeking.

The ball type bearing appears to damage the jewel less than the pivot type and produces the largest percentage of jewels which can be put back into service. This may be partially accounted for by the fact that dust and rust are usually found rolled down to form a mat on the surface of the jewel which prevents the ball from coming into contact with the jewel surface. This surface is usually in perfect condition when properly cleaned. These bearings are usually made of natural sapphire, which is interesting in connection with the results indicated below.

From top to bottom: Fig. 6—jewel surface completely broken down, Fig. 7—badly cracked jewel, Fig. 8—result of side thrust due to load on meter, Fig. 9—jewel before cleaning, Fig. 10—the jewel of Fig. 9, after cleaning



The pivot tpe bearings do not produce as many good jewels as do the ball type. The other interesting thing was that natural sapphire bearings used in conjunction with the pivot did not show up as well as did the synthetic. About 15% of the natural sapphire jewels in pivot type bearings were found to be crushed or broken. These were all solidly mounted jewels and may have been damaged by handling in the meter room or in transit.

The synthetic sapphire jewel has of late years been used quite extensively and there is quite a difference of opinion as to the relative merits of the natural and synthetic jewels. After the examination of several thousand jewels, the writer has come to the conclusion that the synthetic jewel is more uniform in its structure, has no inclusion of foreign matter, and where pivot cavities are worn in the jewel the surface of these cavities is smooth, does not consist of a series of concentric circles as in the majority of cases of the natural jewel, and pressure parting lines very seldom appear.

A test was made to ascertain the relative toughness, or resistance to impact, between the natural sapphire and synthetic jewels. The test equipment consisted of a 3/16-in. I.D. glass tube attached to an upright support through which a shaft from a d.c. meter with pivot attached was dropped on the jewel. The latter was screwed into a heavy iron plate and provision was made so that the pivot struck the exact centre of the jewel at each blow.

Preliminary tests were made on slightly defective jewels, and it was found that a series of rather light blows gave better results as far as observation was concerned and more nearly duplicated the jewel abuse during service. The meter shaft was cut off to about 4-in. in length and with the pivot weighed 5 grams. A drop of 12-in. was decided as a proper distance, taking into consideration the friction and windage of the passage through the tube.

In this test the super-synthetic jewel withstood a greater number of blows and when broken the break consisted of a number of cracks while in the other jewels the jewel was crushed. This seems to confirm the results of the microscopic examination. With the exception of the ball type jewel, the synthetic jewel shows the highest percentage of good jewels.

Pivots have been repolished with very satisfactory results, using the following method: A high speed jeweler's buffing motor was fitted with three buffing wheels, first a soft leather buff about three inches in diameter, and two cotton buffs. The first two are charged with a fine buffing compound, and the last, or final buff, is charged with No. 3 Alumina powder. The pivot is screwed into a C-6 meter shaft and held at an angle of about 45-deg. and rotated while in contact with the wheels. After a little practice it was found that pivots polished in this manner could not be distinguished from new ones.

There seems to be considerable difference of opinion as to the use of meter jewels that show some wear from service, and some authorities seem to think that jewels which show only slight wear should be returned to service.

Fig. 11—Jewel breakdown is accelerated when new pivots are placed in jewels which are deformed, as are these, through various types of wear from the previous pivot

As stated previously, the efficiency of a jewel bearing depends on the two surfaces in contact and friction is at a minimum when the surfaces are perfectly smooth and polished, and as soon as the surfaces become roughened and present points or edges to the rotating pivot, small particles are broken off and become imbedded in the pivot or are rolled between the two surfaces, forming a grinding element which accelerates the wear and breaking down of the jewel.

In the case of pivot wear there are several conditions to consider.

1. If a jewel has a pivot worn spot and is placed in a meter with a new pivot, we have the condition shown in Fig. 11a, or,

From the knowledge and experience gained from the use of the microscopical method of examing jewels there seems to be no question as to its superiority over the old methods, because defects are visualized rather than felt. The work is done by one or two men who become expert in judging the condition of the jewels. Advantages of this method cannot be fully calculated until at least one test period has elapsed, because in most cases the jewels have been tested by the old method and there is no record as to the time they have been in service. In the opinion of the author, however, the percentage of good jewels will be much higher at the end of the first test period since many of the old jewels have been in service many years.

Angle Switching for Improved Synchronous Motor Starting

By A. W. COPLEY

Engineering Manager, Pacific Coast Division, Westinghouse Electric & Manufacturing Co., San Francisco

Automatic field application increases starting torque or permits the design to reduce starting current. Simple, compact apparatus for angle switching can be applied to existing machines.

AUTOMATIC application of the field current of synchronous motors during the starting period, known as angle switching, is the result of several years of development which furnished the background for the theory and practical application of this development. These developments, described in a series of A.I.E.E. papers*, form the basis of explanation of the phenomena involved. When a synchronous motor is started up as an induction motor and comes up to a balancing speed there is a cyclic variation of slip on account of varying torque due to the salient poles and discontinuous amortisseur winding. The synchronous motor differs from the usual induction motor which has a cylindrical rotor and balanced polyphase amortisseur winding. In the former, the balancing speed is reached when the average torque developed is equal to the load torque. Under this condition the rotor slips and tends to be accelerated and retarded alternately, the variation in speed depending upon the closeness with which the amortisseur winding approaches a distributed polyphase winding. During the starting period the field winding of the synchronous motor has been short circuited, generally through a field discharge resistance. When the balancing speed is reached the field is excited by the application of a direct current voltage and the motor either pulls into synchronism or continues to slip with violent power and slip pulsations. One of the important factors that influences the "pull in" is the angular relation between the voltage at the terminals and the voltage induced in the stator by the rotor excitation at the instant the field excitation is applied.

At the balancing speed, the rotor of the synchronous motor continually changes position with respect to the axis of the revolving field of the stator due to the pulsating torque application described above. If the field of the synchronous motor could be applied at the instant the angular relation between the rotor and stator was at the desired point a maximum "pull-in" torque and consequently a maximum load could be synchronized by the motor. Favorable switching also minimizes the mechanical and electrical surges that accompany the pulling-into-step transient.

The angular variation between the axes of the fields of the rotor and stator at the balancing speed, when the synchronous motor is running as an induction motor, is dependent upon design characteristics of the machine and its load. Angle switching produces the maximum effect with motors having high resistance amortisseur windings, small field-time constants and large in-

*Paper by H. E. Edgerton and Paul Fourmarier, presented to the Institute in 1931; Paper by A. T. Ederton, Gordon S. Brown, K. J. Germeshausen and R. W. Hamilton of the Massachusetts Institute of Technology, presented to the Institute in 1933; "Pull in Characteristics of Synchronous Motors," by D. R. Shoults, A. H. Lauder and S. B. Crary of the General Electric Co., published in the Dec. 1935 issue of *Electrical Engineering*.

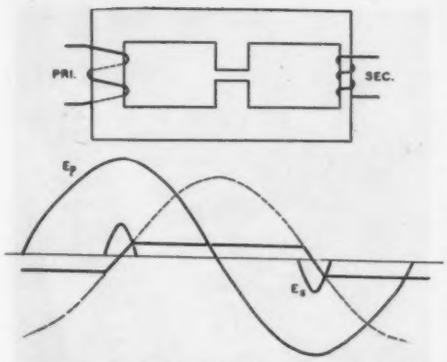


Fig. 1—Schematic diagram of the saturating transformer and the peaked voltage wave obtained on the secondary to indicate the positions of the synchronous rotating field of the stator

ertia loads. By applying the field at the precise moment when the angular relationship between the rotor and stator is at the most advantageous position, the motor can be pulled into step from a larger slip for a given load. The practical meaning of this is that the amortisseur windings need not raise the speed to as high a value as would otherwise be necessary and therefore higher resistance windings with the resulting lower starting currents may be used.

Angle switching is the descriptive term applied to a development which determines the best position for the application of the field and automatically energizes the field at that instant. Briefly it is a method of checking the position of the rotor poles against that of the rotating field developed by the impressed polyphase potential on the motor stator.

The angular position of the rotating field can be readily indicated if one point on the wave of the impressed voltage can be identified. In order to accomplish this definitely, a saturating potential transformer, such as that shown in Fig. 1, is used. It can easily be seen from this diagram that the secondary winding of the transformer will have a voltage induced in it only at the beginning and end of the half-cycle of voltage impressed on the primary. This occurs because of the saturation of the magnetic circuit through the secondary coil at a very low density. The voltage wave from the secondary will therefore consist of a series of sharp kicks of voltage alternating in positive and negative directions. Each time this kick of voltage occurs in a given direction it shows that the rotating field of the impressed voltage is at a given position.

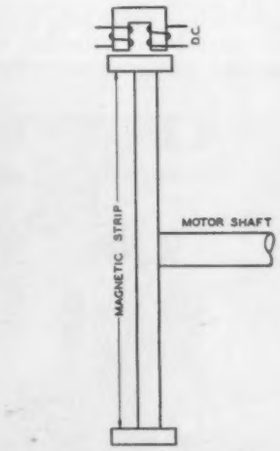


Fig. 2 — The induction generator mounted on the motor shaft consisting of two magnetic strips mounted 180 mechanical deg. apart passing before the induction generator field every revolution

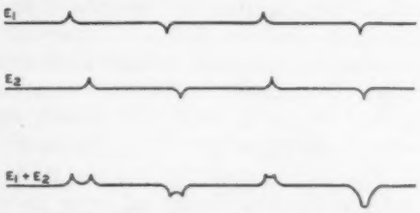


Fig. 3—The two voltage waves obtained from the saturating transformer and the induction generator and (lower) the combination of the two showing the progressive surging of the two impulses until they produce a single impulse double in magnitude which is used for actuating the angle switching equipment

To obtain an indication of the position of the rotor poles, a small induction generator is mounted on the main motor shaft, as illustrated in Fig. 2. From this illustration it can be seen that the voltage kick will be given in the induction generator circuit every time a magnetic strip passes the core upon which the exciting coil and the impulse coil are mounted. Therefore, when the kick in voltage from the induction generator occurs the exact position of the rotor field pole can be determined.

By connecting these two voltages, one from the saturating transformer and the other from the induction generator, together a pulsating voltage wave will be obtained. However, as the rotor is slipping and the rotating field is at synchronous speed, the voltage kicks from the latter will progress with respect to the former and at a given position of the synchronous rotating field and rotor poles the two voltages will coincide so as to give a voltage variation double in magnitude. The position of the magnetic coil of the induction generator can be adjusted so that the voltage kick from it will come at any desired position of the rotor poles. If then the adjustment is made so that the angular position at the time of the voltage kick is most advantageous for the application of field current it provides a simple means of controlling the application of the field by allowing it to be actuated

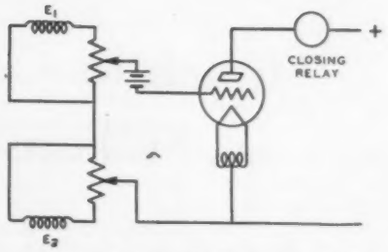


Fig. 4—Schematic diagram of the grid-glow tube controlled from the combined voltage wave shown in Fig. 3

only by a voltage of double the magnitude of the component parts of the wave.

This is accomplished by allowing the superposed voltage to excite the grid of a KU-627 grid-glow tube. This grid is so biased that the tube will become conducting only when a voltage as high as obtained by the sum of the two voltage kicks is applied. It operates at very high speed, allowing a plate current to be established immediately. The plate current in turn operates a high-speed relay, which closes the field circuit.

As usually applied, the motor is started in the ordinary manner as an induction motor. After it has reached its maximum speed on the damper winding, the angle switching equipment is energized. Then this equipment applies the excitation to the rotor field the first time that the rotor and the impressed voltage have the proper angular relation.

Illustrative of the results which can be obtained, a 290-h.p., 1,200-r.p.m., 60-cycle, 80 per cent p.f. motor with a particular moment of inertia would pull into step every time without angle switching against only 29 per cent torque. However, with angle switching it would pull in against 38 per cent torque. Therefore, if the load is such that only 29 per cent torque is required, a higher resistance amortisseur winding could be used which would reduce the starting current approximately 25 per cent. Similarly, angle switching has been applied to cement mill motors to reduce torque pulsations on the couplings between the motors and the mills when the motors were pulling into step. A further interesting application of angle switching has been made in an air-conditioning system for the Kansas City municipal auditorium. Here two motors drive four cylindrical reciprocating compressors, and in order to distribute power pulsations it was desired that the corresponding cranks in the two compressors be 45 deg. out of phase. One motor was started in the normal manner. A second motor is started and synchronized with the two rotors at the proper angle displacement, determined by the angle switching equipment.

Miniature Generators Make Millions of Tones

SINCE the electric organ was first introduced to the West spectacularly at the Ford Bowl at the San Diego Exposition, interest has attached to this unique method of producing music electrically. This interest has devoted itself to the possibilities for more widespread use of this unique instrument. Already churches, residences, mortuaries, music conservatories, movie studios, schools, colleges, hotels, restaurants, ball rooms and radio stations as well as private residences have installed these electrical organs without pipes which take no more space than an ordinary piano.

There are two of such electrical organs now produced, differing slightly in their method of producing sound. The best known possibly is that invented by Laurens Hammond, inventor and manufacturer of Hammond electric clocks. A second was developed by Ivan Eremeeff, of Philadelphia, working in conjunction with Leopold Stokowski, conductor of the Philadelphia orchestra.

Unlike the original organs, with their familiar array of pipes, wind chests and complicated air conduits, the new organs are entirely electrical in operation and also in projection of the tone. Only the consoles, or keyboards, where the originating tones are produced, are similar to the old organ keyboard. The amplification of the sound is accomplished electrically in a manner similar to a public address system, talking picture or radio set. Thus the entire equipment can be housed in two instruments, one the console and a second instrument known as the power cabinet, which contains the amplification equipment and the loud speakers. Both are attractively finished in high-grade cabinet work and are truly portable in that they may be moved about a residence, church or other building at the will of the owner.

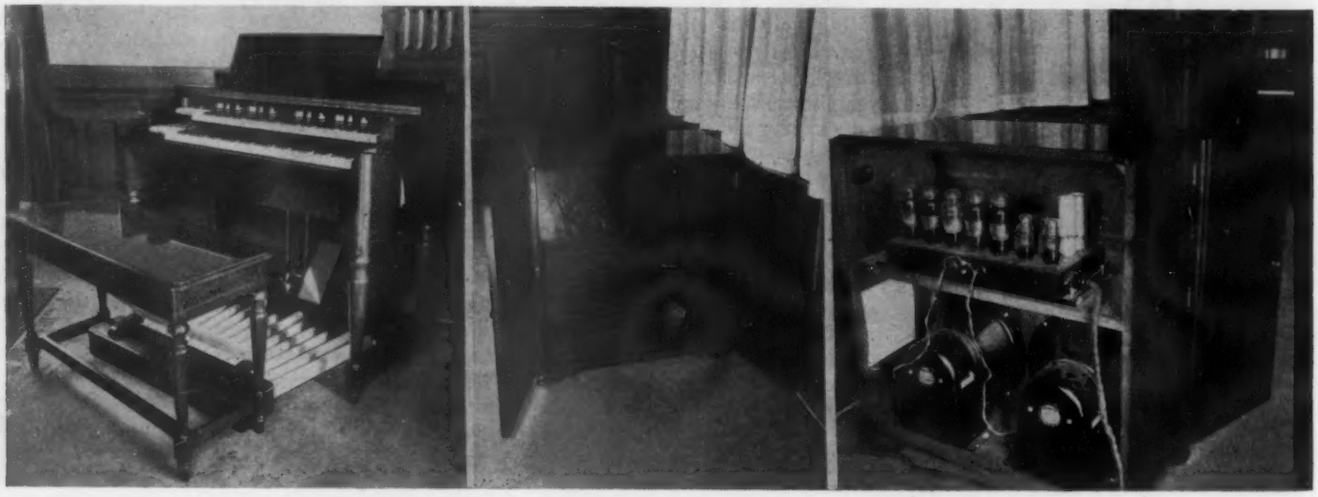
The tone generating equipment developed by Mr. Hammond came as a result of observation that the wheels of a clock give forth a specific if faint sound while revolving. On a central shaft, therefore, are mounted 91 wheels of various sizes driven by a single synchronous motor. Each wheel contains nodes or bumps which, when revolved in front of permanent magnets placed adjacent to each wheel, create a current in the surrounding coils of the magnet, which is amplified, first in the console, and then again in the main organ amplifier or power cabinet.

Using these 91 tones as a basis, Mr. Hammond combines them to simulate certain instruments or well-known organ stops.

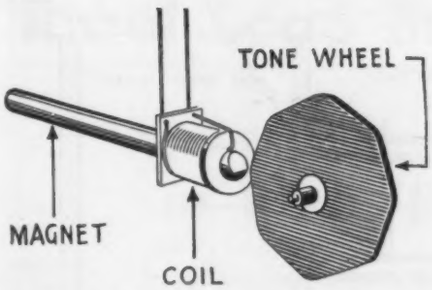
A principle not frequently recognized is that the only difference between one tone or one quality of tone and another is the difference in the arrangement of overtones accompanying the fundamental note. Thus with this instrument there is instantly available an infinite variety of tones and overtones which reproduce in quality the tones of flute, diapason, string and reed families and even percussion instruments like a xylophone or tom-tom.

To control the tone color four groups of harmonic controls are provided, two for each manual of the organ. These

Console of the electric organ contains two keyboards and a pedal board below. The black keys in the immediate foreground are preset on a strip board at the rear of the console to provide instant combinations of tones that reproduce the more generally used organ tones, such as diapason, flutes, strings, tibia, etc. To create any combination not already pre-set, the stops at the left are drawn out to the required degree of intensity. There is, for instance, a stop for the fundamental note, another for each subfundamental and overtone, which when combined, give the particular "color" to the tone. The adjustable tremolo knob is at the lower left of the picture



Entire console and bench occupy about the space of a piano. This houses the tone discs and the preliminary stages of amplification. Center: a small cabinet like this houses the speakers and the amplifying equipment, which can be seen in the right hand picture looking into the rear of the cabinet



One of the 91 units, all mounted on the same, synchronous driven shaft, which generate the voltage fluctuations that are reproduced in sound

can be pre-set in certain combinations or adjusted to suit the special or inventive desires of the organist.

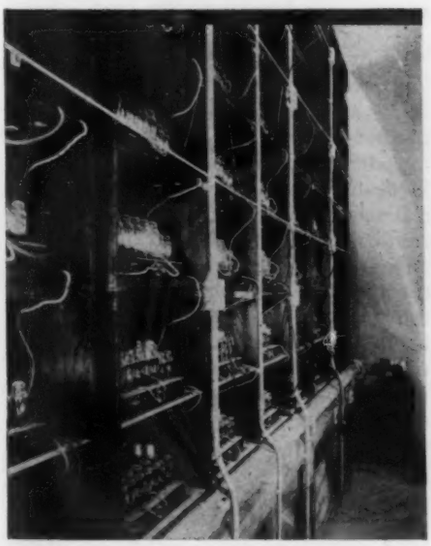
Each group of harmonic controls consists of nine stops, each stop having nine positions marked from 0 to 8 inclusive representing degrees of strength. Each control regulates the presence and strength of the harmonic with which it is associated, i. e., one controls the fundamental, another the sub fundamental, another a third and sub harmonic, and others the various harmonics from the second to the eighth. Thus the system makes available all the ingredients to make up any complex tone desired. The nine controls assume millions of different positions relative to each other, each position resulting in a different tone color. It is estimated that more than 250,000,000 different musical tones can be produced on the instrument.

Another remarkable feature is the extreme flexibility of the swell and also of the tremulant. The swell, or volume control, is approximately three times that of ordinary pipe organs. Sounds so low as to be barely audible and again mighty surges of tones can be produced at will. The tremolo also can be controlled as to degree by the organist, something rarely possible in ordinary organs.

The Eremeeff principle differs slightly from that used by Hammond. In the Eremeeff console are twelve rotating discs with various perforations. These intersects the light beams from 900 tiny electric lamps. As a key is struck the lamp connected with it lights up and as the disc interrupts the beam between it and the photo-electric cell a light pattern is produced which the photocell translates into energy. This is again translated into sound through the amplifier mechanism.

Unaffected by temperature or humidity, always in tune, mechanically simple, with few moving parts, no air pressure system or vibrating parts and of small size and weight, with a cost that places it within reach of many organizations and homes having neither the room nor the finances for a regular organ, the electric instrument is finding a wide market. Its operating cost is about a cent an hour and the upkeep is only that of maintaining the radio tubes.

Larger than ordinary was the amplification bank for the electric organ at the Ford Bowl in San Diego exposition. For the residence and church the equipment is housed in a cabinet 27 in. wide and 30 in. high and 15 in. deep



Electrically Heated Hot Water Warms City Light Building

By MANDUS E. BRIDSTON
Seattle Wash.

As Seattle emerges from one of its heaviest winters, a milestone in electric heating is recorded. In the Seattle City Light Building, where thousands of visitors were enthused at the opening last fall by the spectacle of the newest in modern lighting, an electric boiler has efficiently triumphed the siege of the cold months.

The boiler, 900-kw. capacity, automatically controlled, is the heat source for the building's twin heating system—direct radiation by hot water and indirect radiation by hot air. Its mechanical and electrical features are new in electric-heating-unit construction.

In appearance it is not unlike a water-tube boiler, but in operation it could be classed either Scotch or water-tube, depending on the point of view. For the heating units are within 3-in. tubes, around which is the water, contained in 4-in. tubes concentrically surrounding the smaller ones.

Length of the tubes is 10 ft. Nine tubes are mounted parallel in a vertical plane, with their axes at 15 deg. to the horizontal, between two vertical headers. Ten such sections are mounted side by side—90 tubes in all. The high end is at the front. Each section connects at rear bottom to a return drum, and at top to a supply drum. The water thus enters at the rear through the return drum circulates upward and forward between the 3 and 4-in. tubes rising on the 15-deg. slope, and leaves at front top through the supply header. Outside dimensions of header and drum cross-sections are 7x7 in. Outside dimensions of the ten section headers assembled are 4 ft. 6 in. high by 6 ft. 2 in. wide.

The 4-in. tubes are swedged front and rear to the inside header surfaces. The 3-in. tubes are spun closed at the rear ends, which butt into the rear headers. The front ends are upset and belled to the outer face of the front header.

Heating units are of nichrome. Each is a 10-ft. "U" which is run into the 3-in. tube, closed end first by means of a guide hook carrying insulators. Guide hook remains in the tube. The "U" ends are welded to polished stainless steel bars.

Electrically, the 90 units are divided into six sections of fifteen units each. The units of each of these sections are star connected, ungrounded, with five heating units in series in each leg. Across each of the five units is approximately 58 volts, approximately 289 volts across the five together.

Control is through three-point magnetic contactors operated by air thermostats on the supply header. These cut out the contactors in steps between 160 and 180 deg. Maximum temperature is 180 deg., and maximum load on each

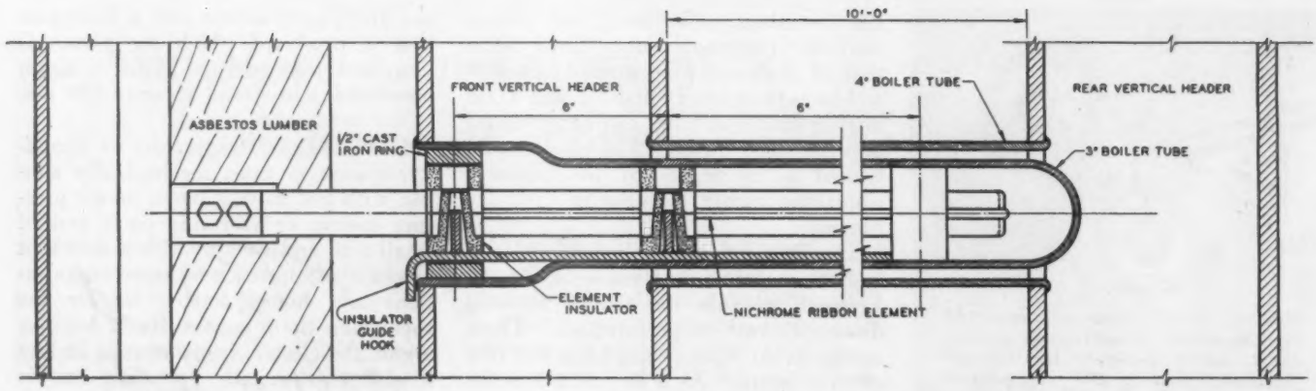


Fig. 2 — Section showing heater element inclosed in boiler tubes

section is 150 kw., or 900 kw. in all. For protection, main line air breaker, controlled by a reverse acting air thermostat, will trip out should the temperature rise to 190 deg.

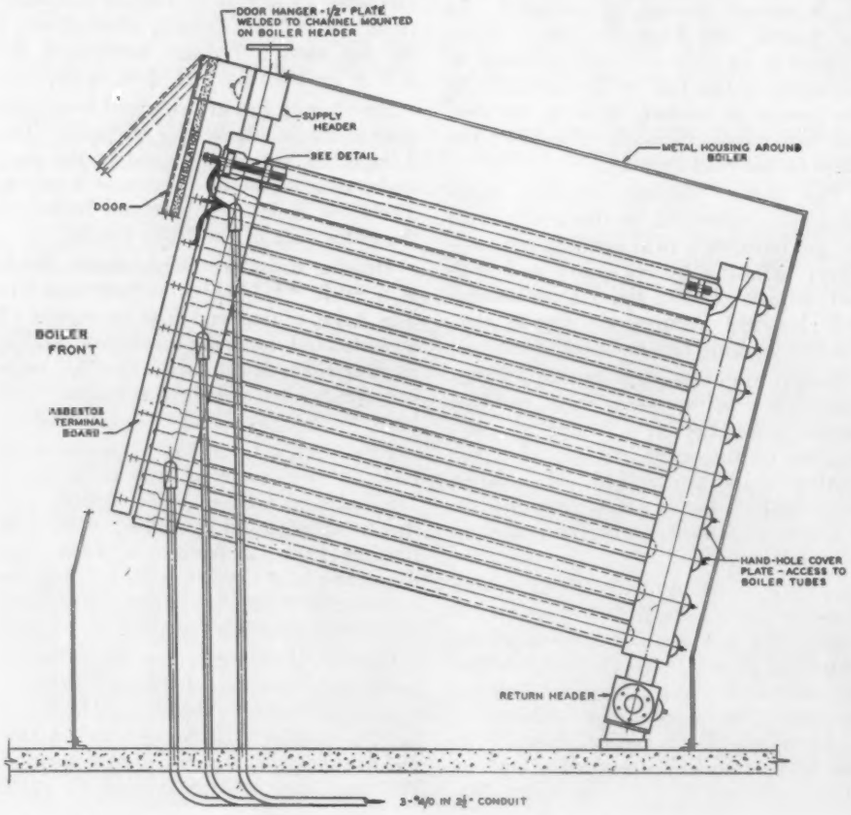
Hot water for building heating is supplied through a 4-in. line to conventional radiators, and through a supply header to stages of tempering coils, placed in the ventilating ducts, for indirect hot air heating. Pumps in the return lines provide circulation.

Three-phase supply is a feature of the Seattle City Light Building. Service enters the building through a 3-pole, 3,000-amp., 208-volt air breaker at the main switchboard. The system allows balancing of load on any circuit, permits pulling in as many as four circuits through a single conduit, is estimated to effect an 11.1-percent copper saving over a single-phase, three-wire system, and offers variety in types of service: single-phase, 120-volt; single-phase, 208-volt; three-phase, 208-volt, and 3-wire, 120-volt range service using two phase wires and the neutral.

All feeders are identified in accord with provisions of the new Seattle electrical code. Phases are colored red, green and black, and the neutral white or gray.

On display in the building's lobby are new-model appliances and examples of modern lighting units. These catch the public eye. But in the basement, far from the display room, unseen and unheard, the boiler is performing day after day.

Fig. 1 — Side elevation of boiler


DOOR HANGER - 1/2" PLATE WELDED TO CHANNEL MOUNTED ON BOILER HEADER
SUPPLY HEADER
SEE DETAIL
METAL HOUSING AROUND BOILER
DOOR
BOILER FRONT
ASBESTOS TERMINAL BOARD
HAND-HOLE COVER PLATE - ACCESS TO BOILER TUBES
RETURN HEADER
3-#0 IN 2½" CONDUIT

Cellophane Used for Motor Winding Insulation

Cellophane has opened the way to new improvements in motor design, it has been announced by the Du Pont Cellophane Co. in revealing the results of tests on motors wound with Cellophane-insulated wire. More copper turns per unit space and other advantages are claimed.

Cellophane ribbons, less than 0.001 in. thick, were spun on wire by insulating machines; the layers covered with lacquer. Efficient insulation, smoother finish, and a time saving of 28 per cent over that for winding with cotton were claimed.

In actual performance, according to the Du Pont company, motors with Cellophane insulating wiring dissipated heat quicker and demonstrated higher resistance to excessive temperatures.

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• SUCCESSFUL ELECTRICAL DRIVE on a log carriage is reported by the Washington Pulp and Paper Corp., Port Angeles, following installation of a Westinghouse, gearless elevator type motor. The severe duty cycle consists of accelerating the log and carriage, weighing 16 tons, through the length of the cut, stop, reverse the load and return, all in 7 sec. Gearless drive and regenerative breaking were used.

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• A NEW SYSTEM for the transmission and broadcasting of sound for such large buildings as schools, hotels, department stores and hospitals has been introduced by Western Electric Co. It is designed to operate from a single cabinet with either microphones, a radio receiver, or phonograph records, either of which can be broadcast over the system throughout the building. In the cabinet are centered all controls, flexible switching arrangements, a radio receiver, electric phonograph, amplifying equipment, and a combination loudspeaker and microphone device. Another feature of the system is that it provides talk-back facilities. The loudspeakers become microphones for picking up sound.

Western States Lead U. S. in Rural Electrification

WITH 53.8 per cent of its farms electrified the Pacific Coast region led all sections of the United States in the degree of rural electrification at the beginning of 1936, according to a survey recently released by the Edison Electric Institute. This compares with 12.5 per cent for the United States as a whole.

Among individual states leadership in farm electrification has been assumed by New Hampshire with a percentage of 68.3. Utah, California, Connecticut and New Jersey each had 60 per cent. Records for the individual states in the West are shown in the accompanying table which also gives comparisons between 1923 and 1935.

A new and more practical aspect is placed upon the entire subject of rural electrification by the last E.E.I. study. Performance of the industry in electrifying American agriculture is really much better than the bare statistics indicate. According to the 1930 census of agriculture about 400,000 of the farms enumerated actually have no houses at all on them and of the total of 6,288,000 farms in the United States 2,516,000 or 40 per cent have dwellings valued at less than $500. Since it costs $350 approximately for wiring and for the more common appliances in the home, few of these farms are prospective electric customers. This is emphasized by the fact that some 160,000 farms now reached by power lines do not take any electricity.

Eliminating these untenanted farms and those with dwellings valued at less than $500, the Pacific Coast states show a percentage electrification of 72.6 as compared to 20.9 per cent for the United States as a whole. Leadership among the individual states on this basis is assumed by Utah with 94.3 per cent with Arizona second with 88.0 per cent.

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Soil-Heating Produces 50 Plants per Kw.-hr.

That electric hotbeds are serving farmers' needs more satisfactorily from every standpoint is evidenced by the fact that the Federal Relief Farm near Seattle used electric hotbed cable in their four hotbeds, each 75 ft. long and 12 ft. wide, to produce 715,000 plants of lettuce, tomatoes, cabbage and celery for field planting during the last spring. About a mile of standard lead covered hotbed cable furnished the heat. Eight thermostats, 2 in each bed, controlled the circuit so as to give just the temperature desired for each kind of plant.

With the limited space, if manure had been used for heating, it would have been impossible to grow this large number of plants during one season. The soil would have had to be removed and fresh manure put in for heat after each crop. With the cable there was no limit to the heating period. As soon as one crop of plants was removed, another was planted, and the temperature controlled as desired, by adjusting the thermostats. By this method each bed raised 3 and sometimes 4 crops of plants during the spring.

The heat was turned on Feb. 28, and in five months, 14,700 kw.-hr. were used to produce 715,000 plants. This is about 50 plants for every kilowatt-hour used.

The electric hotbed is ideal in every respect for this particular work, according to Cecil Solly, agriculturist in charge of the project.

He reports he found a new use for electric hotbeds in ripening tomatoes. The tomatoes were picked green and put into the beds. The beds were then covered with sash which had been tilted on one side to give air circulation. The sash was covered with canvas to keep the beds dark and warm. Tomatoes ripened in three days, and Mr. Solly reports it is much more satisfactory than depending upon the sun for ripening and at the same time running the risk of frost injury.

The temperature during the day was 65 to 70 deg. F. and about 58 deg. at night. It so happened that the temperature was sufficient to ripen the tomatoes without turning on the heat. However, had the temperature dropped unduly low, it would have been easy to turn on the electric heat to hasten ripening. The canvas covering was not taken off the beds during the day, as the ripening proceeded much more satisfactorily in the dark.

Greenhouse Labor-Saver

Washing the small terra cotta pots used in transplanting from cutting benches presents a problem that electricity has solved for one nurseryman at Puyallup, Wash. With the assistance of a rural agent from the Puget Sound Power & Light Co. this motor-driven washer was designed. A ¼-hp. motor belted to a revolving brush quickly and thoroughly does the work which was difficult to perform by hand.

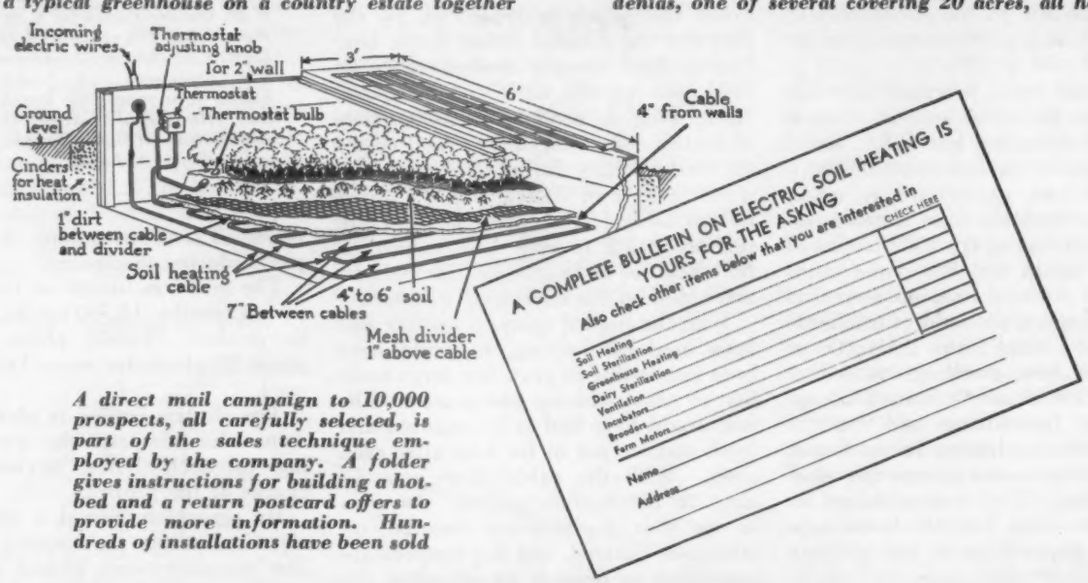
Number and Percentage of Farms Served in the 11 Western States 1923 and 1935

	Number of Farms April, 1930	Farms Served on December 31, 1923 Number	%	Farms Served on December 31, 1935 Number	%	Percentage* Based on Farms with Dwellings of $500 or Over
Montana	47,495	550	1.2	2,899	6.1	11.0
Idaho	41,674	5,050	12.5	14,872	35.7	53.9
Wyoming	16,011	280	1.8	547	3.4	6.1
Colorado	59,956	1,118	1.9	7,236	12.1	19.5
New Mexico	31,404	250	0.8	1,400	4.5	14.3
Arizona	14,173	225	2.1	5,921	41.8	88.0
Utah	27,159	3,330	12.9	16,554	61.0	94.3
Nevada	3,442	125	3.2	976	28.4	41.1
Total Mountain	241,314	10,928	4.6	50,405	20.9	36.9
Washington	70,904	13,400	18.3	40,454	57.1	77.5
Oregon	55,153	5,250	9.4	19,284	35.0	47.5
California	135,676	32,064	23.5	81,100	59.8	80.2
Total Pacific	261,733	50,714	20.3	140,838	53.8	72.6
Total United States	6,288,648	177,561	2.8	788,795	12.5	20.9

* Basic data from 1930 Census of Agriculture.

Edison Builds Rural Load Selling Soil Heating

Southern California Edison Co. has developed profitable load through selling the advantages of electric soil-heating. Here is a typical greenhouse on a country estate together with a heated fish pond for tropical fish. At the right is a commercial greenhouse for the propagation of gardenias, one of several covering 20 acres, all heated



A direct mail campaign to 10,000 prospects, all carefully selected, is part of the sales technique employed by the company. A folder gives instructions for building a hotbed and a return postcard offers to provide more information. Hundreds of installations have been sold

Soil heating cable is unexcelled for starting cuttings from rare shrubs and trees. Many commercial nurseries rely upon this method entirely with record results

Germination boxes for seeds difficult to start can be easily constructed. This is in the greenhouse of an amateur who specializes in fine begonias

Germination benches where cuttings are rooted in pots instead of directly in the hotbed are now electrically heated. This bench is in a large nursery

Cooperation on Parade + + +

[*Forecast of forthcoming cooperative merchandising activities, and review of activities in progress or completed, a summary of cooperation at work throughout the West*]

Back to Fundamental Selling Urged for Refrigerators

AFTER the F.H.A., what? That problem faced dealers and distributors in electric refrigerators throughout northern California just as the beginning of refrigeration season opened. Everybody who had been in the mood for buying, it was felt, had been sold during the last rush days of F.H.A. terms. True there would be a spurt of soldier bonus buying, but after all, sooner or later the selling of refrigerators would have to roll up its sleeves and go to work on the straight selling of the idea of refrigeration.

Working through the Electric Appliance Society of Northern California, a summer campaign on refrigerators was designed and is now well under way to bring salespeople and dealers back to good strong selling again. And like the previous campaigns of the Society it is a campaign that is built from the dealer up, and not from the manufacturer or utility down. It appreciates the bare fact that it is the salesman, after all, who does the selling by personal contact with prospects. True, it does beat the brush with advertising and promotional stunts to bring the prospects out into the open. But to the salesman and the dealer it brings the most beneficial help in the form of sales training and demonstrator preparation.

Basically the plan as outlined by B. W. Reynolds, promotional director, consists of a series of 29 refrigeration sales schools, which started June 11, and will be completed by July 2. These schools were held in all the principal towns and cities in northern and central California. Two sets of schools were going on simultaneously, one under the direction of Bertha Mae Hixson, in the coast territory, and another under Gladys Byrne, in the valley territory.

Both of these educational directors for the Society have with them an advance instructor, who goes to each town in the morning of the sales school, sets up the refrigerators and display material, and conducts a half day session of instruction to local women demonstrators. In this half day session the local women demonstrators — either salespeople of dealers or those who will later be sales demonstrators for them, or wives of dealers who wish to learn the demonstration technique — are taught how to make up refrigerator dainties, how to stock a refrigerator with real foods to show its supreme

Campaign ad of the Society around which local tie-in product ads and publicity will be run by dealers and distributors

usefulness, and how to tell prospects how to use their refrigerators to fullest advantage.

Teach Demonstrators and Salesmen

That same evening the educational director for the Society holds a complete sales meeting, to which not only the demonstrators come, but all refrigerator salesmen and dealers of the locality. Here a complete sales story is told.

Although both Miss Byrne and Miss Hixson each have their individual way of presenting this sales information, both tell a story that reemphasizes the solid fundamentals of refrigerator selling. Both review the food health story, the need for a safety zone of from 32 to 50 deg. F. for stopping of bacteria growth. Both then dramatize the slogan of the campaign, "*At last, something for nothing. An electric refrigerator pays for itself,*" by giving clever and complete hints as to economies that can be practiced by the purchaser which will actually save more than enough to pay for the refrigerator. Both show the benefits that women can obtain, the way in which to serve and entertain better, to make real reputations as hostesses and cooks.

Then each tells or reviews the fundamentals of selling refrigerators: planning the work, canvassing, following up, demonstrating, and closing the sale. Miss Byrne, for example, took all the sting out of the word "canvassing" when she explained that it really meant visiting, pleasant visiting with people to bring them news of something that was to their very great advantage.

Each local group is then urged to work up prizes for salesmen, incentives of some kind to reward the salespeople who make the most of the summer selling opportunity.

The very well standardized backing of advertising and promotion which the Society has developed will be augmented in this campaign by more advertising in more papers and for more times. Manufacturers who are cooperating in this campaign and helping with the advertising support include Crosley, Cyclops, Fairbanks-Morse, Frigidaire, General Electric, Grunow, Hotpoint, Kelvinator, Leonard, Norge, Spartan, Stewart-Warner, Universal Cooler, and Westinghouse.

Pacific Gas and Electric Co. is also cooperating with a strong advertising appropriation and with hostess demonstrations of the dealers' refrigerators at 63 of its district offices. Dealers are urged to stock completely enough for their own floors and for a box of from 6 to 8 cu. ft. size to place on display on P. G. and E. office floors.

Newspapers are to be furnished not only a complete clip sheet of publicity stories but for the first time the Society has had a complete set of photographs and mats made of each of the 15 refrigerators in the campaign, to be used by the newspapers in local refrigerator pages and publicity. A large cut-out display piece is being supplied dealers to use in floor and window displays. Bill stickers will go to every home on all P. G. and E. lines, telling again a refrigerator story.

One of the unique features of this campaign is a little pamphlet, printed attractively on salmon colored paper,

entitled, "What Every Woman Wants to Know About an Electric Refrigerator." In it is contained, first a summary of how an electric refrigerator pays for itself in quantity buying, special bargains, elimination of food spoilage, utilization of left overs, saving of time and energy, and provision of frozen desserts and ice cubes. Then a page giving the basic rules for preparing successful frozen desserts follows. The inside spread contains tested recipes for ice cream, fruit desserts, sauces, refrigerator pie, and vegetable layer loaf. Rules for preparing a set design in molded gelatin salad or dessert and practical suggestions for using left overs, is next, and a final page of miscellaneous hints for using a refrigerator, with the back cover containing a replica of the campaign's advertising theme, complete this useful booket.

Final and convincing reality will be given the campaign by hostess programs in 39 of the P. G. and E. offices. Each will use a completely stocked refrigerator to illustrate the actual storage capacity for quantity purchases, the ingenious use of left overs, the delicious frozen desserts that can be made, the arrangement of various kinds of foods in a refrigerator, and the advance preparation of certain staples that will save time for a quick meal to unexpected guests.

Indeed, to turn the campaign's slogan on itself it might well be said that the electric refrigerator campaign will be something for nothing. It will pay for itself.

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Arizona Air Conditioning Grows With Hot Weather

Air conditioning is again being talked by everyone in Phoenix, Arizona, as the summer progresses. Beginning late in May with a special section of the "Arizona Republic," not only dealers and contractors in air conditioning equipment, but all stores already air conditioned joined in the advertising and publicity boost for air conditioning.

Throughout the advertising were prominent the offers of assistance by the air conditioning department of Central Arizona Light & Power Co., which is cooperating so thoroughly with the contractors and dealers in this equipment for that region.

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• REFRIGERANIA SWEEPSTAKES is the name of refrigerator selling competition being conducted by the Southern Colorado Power Co. At the end of the first "lap," those who appeared most likely to show or place were C. S. Kirk and Earl Williams of Pueblo district, V. M. Johnson of Canon City and Henry McCarthy Jr., of Ordway.

Utilities' Home Service Supervisors Meet for Instruction

• Fifty-two women supervisors of home service departments of western utility companies met in Ogden, Utah, recently for a three-day course of instruction in food and cooking problems. Miss Frances Weedman, manager of the Home Economics Department of the Hotpoint Company and her assistant, Miss Mildred Hickman, conducted the course. The group was welcomed by Mayor Harman W. Peery. George M. Gadsby, president and general manager of the Utah Power & Light Company, and P. M. Parry, vice-president and commercial manager, both of Salt Lake City, also addressed the supervisors.

Attending the meeting were: Nancy Finch, Jeanette Nelden, Irma Bleak, LaRue McKewan, Vilate White, Edna Parrish, Barbara Duncan, Harriet Pearson, Ruby Smith, Winnie Clyde, Wilamelia Smith, Irene Adams, Ardell Welch, Thelma Peterson, Ruth Day, Hazel McCarty, Hortense Beers, Thelma Watson, Nellie G. McCarrell, Hazel Bishop, Florence Lewis, Edith Foxley, Ada McCarty, Eleanora Tasso, Mary Crafts, all of the Utah Power & Light Company; Elsie Lorens of the Public Service Company of Colorado; Ina Scrivener, Maude Theis, Agnes Roxbury, Virginia Warner, Marie Thomas, Clara Kohler, Blanch Smith, Elizabeth Pope, Afton Hansen, Edith Sales, and Getty Goe, all of the Montana Power Company; Helen Swanson, Carol Laughlin, Susan Miller, Laura Murphy, Alice Huckins, Harriet Wallace, Dorothy Tolleth, Leilah Foster, Josephine Wright, Amy Villa and Lois Bailey, all of the Idaho Power Company; Mrs. Florence Welch of the Dakota Power Company.

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"R" Button Signifies Wearer Cooks Electrically

More than 1,000 husbands and wives engaged in the electrical industry have heard the electric range program which is a part of an industry-wide "Use it yourself" program sponsored by the Electrical Development League of Southern California. Approximately half of this number are from the electrical wholesaling group and the balance from the manufacturing and contracting group.

As a part of the program the Electrical Development League is issuing lapel buttons which consist of a small gold letter "R" to those people in the electrical industry who have electric ranges installed in their homes. The initial presentations were made at an enthusiastic meeting of the Los Angeles Electric Club on June 15 at which Ross Hartley, president of the Electric Corp. and originator of the program, presided. In order to qualify for one of the "R" buttons an application blank must be secured from the Electrical Development League, filled out and submitted for approval. It is anticipated that the button idea will appreciably stimulate the purchase of electric ranges within the industry and at the same time add to the legion of electrical people who can tell a convincing story on the advantages of electrical cookery based upon their own experience.

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• ALAMEDA's Bureau of Electricity has begun the publication of a quarterly leaflet of four pages, in newspaper tabloid style, entitled "The Electric Flash," which is distributed to all of its consumers in the City of Alameda. Prepared by the Emil Reinhardt Advertising Agency, the first issue told of increased demands for electricity and of progress on the new substation being built. It also contained a balance sheet of the department's assets and liabilities, announced wiring plans and the back cover was devoted to pictures of the stores and of the proprietors of six prominent electrical appliance dealers in Alameda. Those shown were Coupe Radio and Electric Shop, Franck's Music and Electric Shop, Howard's Radio and Electric Shop, Coleman Electric Co., Barker-Tilton Furniture Co., Ansel's Electric Co., and Park Electric Co.

Edison Dealers Excel In Model Kitchens

As a result of increasing public interest in the national kitchen modernizing program more than 50 electrical dealers in communities on the lines of the Southern California Edison Co. have established model kitchens in their stores. It is estimated that 50 additional model kitchens will be on display in stores of all types before the end of 1936. Southern California Edison Co. itself has a portable model kitchen display which was part of its 1935 exhibit at the San Diego Fair. This model kitchen has been seen by an excess of 3,000,000 people. It has been displayed in most Edison offices and is available to dealers anywhere in the territory served by the company who will pay its transportation cost to and from the utility's central warehouse.

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Cooperation Program Expanded in B. C.

F. H. Adams has been appointed dealers' relations supervisor for the British Columbia Electric Railway Co. His appointment is a step in the company's introduction of a vigorous program of dealer cooperation.

Mr. Adams has a 22-year record of wide electrical experience throughout Canada, particularly in manufacturing. He moves to his new post from the L. & S. Electrical Manufacturing Co. of Winnipeg, which he assisted in organizing a year ago.

B. C. Electric Railway's dealer program is the outgrowth of mutual satisfaction over similar program embodying relations between the company and contractors.

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Jointly Sponsored Home Draws Spokane Crowds

Although Spokane House takes its name from the past, its equipment points to the future. Like the trading post which the Northwest Fur Co. built at the junction of the Spokane and Little Spokane Rivers in 1810, the new Spokane House is a pioneering venture.

A model, electrically equipped demonstration home, Spokane House was built under the cooperative sponsorship of firms representing many phases of the electrical industry. These included the Washington Water Power Co., electric service; Maxwell & Franks, wiring; Metallic Arts Co., lighting fixtures; Great Western Fuel Co., automatic stoker, and Westinghouse Electric Supply Co., supplies.

Usual electrical installations were supplemented by a variety of interest catchers. These include an electric door chime, electrically operated garage doors and an auxiliary buffet refrigerator in the basement playroom.

Space heaters were built into bedrooms and bathrooms, kitchen equipment includes range, refrigerator and dishwasher, and air conditioning capacity assures complete air change every 15 minutes. Indirect lighting throughout is supplemented by I.E.S. lamps. Open for public inspection, it has attracted the enthusiastic interest of Spokane residents.

•

San Diegans Strike Hard on Refrigeration

Refrigerator sales and advertising dominated the entire theme in San Diego County during June lead by the dominent space of the Bureau of Radio and Electrical Appliances of San Diego County. Early in June the June Bride theme was predominant and then the bonus situation was capitalized to recommend the purchase of such permanent investments as an electric refrigerator. Late in June the June Bride again returned to the scene.

Street car cards were built around a message that a recent legal case had declared refrigeration a necessity. All street cars in the city were placarded and attractive window posters were furnished dealers for their windows.

More and more the exhibits at the Palace of Electricity at San Diego Exposition were brought to completion and augmented with more spectacular displays. Beginning in June a daily schedule of "Electrical Wizardry Show," with Kenneth Strickfaden, a nationally known electrical showman and motion picture electrical expert in charge, began. Several times each day from the stage in the Palace of Electricity electrical effects of various types and kinds were shown to ever increasing audiences. Publicity on this feature also began to appear in all papers, insuring larger attendance at the Palace of Electricity display.

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• PICTURES of home furnishing and appliances sold in the West will become available to dealers for use in newspaper advertising through the Westmat Service, organized with headquarters in the Western Furniture Exchange, 180 New Montgomery St., San Francisco. The service will cover eleven western States, the Hawaiian Islands and Alaska. Mats, proofs of mats and information pertinent to their use will be available. A bulletin will present style trends and merchandising aids to newspapers and dealers.

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• MCCALL'S MAGAZINE this month carries to 2,500,000 readers an electric range feature article by Norma Newton, Home Service Director of the Los Angeles Bureau of Power & Light, entitled "Easy Summer Meals." The cool delicacy of summer cooking by electricity is stressed in the presentation of recipes for oven dishes. For purposes of the article, *McCall's* submitted to Miss Newton the results of tests on oven cookery, made for the magazine by Iowa State College.

A model electric kitchen by Westinghouse featured the Spokane House exhibition

Women's Committee Personalizes Dealer Cooperation in the South

AGAIN the Women's Committee of the Southern California Edison Co. has written into its record of achievements a substantial load building and good will creating program in practically all of its divisions. The record includes displays and cooking schools at dealer stores, many prospects turned over to dealers for sales of appliances, cooking demonstrations at the various women's organization meetings, as well as a multitude of other social, educational, benevolent, and publicity activities carried on by the women employees of the company throughout the year.

San Bernardino girls at the invitation of a dealer, The Prest Electric Co., at the opening of its new store called "Home Electric," served a complete electrically cooked southern dinner to 75 people, known to be good prospects for electric ranges. Home economists Bess Galvin and Inez Tidwell, cooked the dinner. Leona Dooley, chairman of the group, opened the program presenting sales supervisor Doyle, who presided over the program. The girls carried their hostess-ship forward in a thoughtful and unselfish manner to the last detail, according to the Edison Women's Committee Bulletin, just as if they were entertaining in their own home. The moving picture "Dinner for Eight" was shown. Speakers were Mr. Prest and staff and Mr. Moffat, Redlands district manager of the utility.

Pomona's Women's Committee, according to Verda Humphreys in April reported sales from prospects sent in by members since the previous year: 80 ranges, 56 water heaters, 81 refrigerators, 123 floor lamps, 78 kitchen units, 11 student lamps and 72 miscellaneous appliances.

COOKING UNDER CELLOPHANE

Santa Ana girls arranged with the Home Appliance Shop of Fullerton to conduct a "Miracle Cookery" demonstration, assisted by Carlotta Garrison, home economist of Graybar Electric. Mr. Wagner, proprietor, and the Women's Committee had as their guests the Business and Professional Women's Club of Fullerton, 30 in number. Three complete electric dinners were cooked in ranges completely encased in cellophane to demonstrate the safety of electricity and the absence of fumes. Mr. Harris, lighting specialist, demonstrated small appliances, Mr. Ferris, heavy duty specialist, the deep-fat fry kettle—making doughnuts which were later served the guests with coffee made in the Silex. Irene Drott, loadbuilding chairman, and Mary Belle Adams, committee chairman, were in charge.

Santa Ana's Committee reported 144 refrigerators, 84 ranges, 58 water heaters, 4 washing machines, 10 ironers, 206 floor lamps, and 84 units and student lamps, sold as a result of the girls' activities since last September, representing over 70 kw. of load.

Ventura Division Women's Committee planned to hold a similar dinner for the Business and Professional Women's Club of Ventura on June 16.

The Compton, Montebello, Huntington Park and Whittier District groups of the Central Division, had a complete demonstration of the Mixmaster by Mrs. Carlson, Sunbeam Home Economist of the American Wholesale Hardware Company, Long Beach.

It was recorded that the San Bernardino girls also put on an electric cooking school for the Gurr-Smith Electric Co., a return engagement from a very pleasant occasion of the previous year when the Gurr-Smith Company cooperated with the Edison girls in putting on a cooking school. Gurr-Smith Co. has also offered the use of its model kitchen to the girls for demonstrations of various appliances at various times.

Even the General Office gave the presentation of "Miracle Cookery" for the American Home Section of the Los Angeles District of the Federation of Women's Clubs. One-hundred-twenty-five women were present to see displayed electric cookery completely encased in cellophane. Under a close fitting cellophane cover two complete meals were cooking, one in the oven and another in the thrift-cooker. When the cooking time was completed, the cellophane was removed unharmed proving the safety and absence of fumes with electric cookery. To demonstrate that cellophane would burn in the presence of flame, a match was applied to a sample and it burned briskly immediately.

The food was distributed as prizes to the guests who had come from five counties contiguous to Los Angeles. Edison Home Economists, Verda Rarick, Janet Germain and Ruth Brickey conducted the demonstration.

Equally important are the many other activities carried on by the Women's Committee for the self improvement and education of the various members in all of the company divisions. Dealers, however, are finding that the women employees of the utilities are more and more becoming sales allies with them in the general furthering of the electrification idea.

•

Department Store Appliance Merchandising

Olds, Wortman & King Co., Portland department store, capitalized upon the interest in electric appliances recently with what it called a "Missouri Lane" or "Show Me" series of demonstrations of various appliances and homewares. Among these were the washing machine demonstrations as illustrated above, where prospects were obtained for future follow-up. Below is shown the better light booth of Northwestern Electric Co. where Miss Harriet Klump demonstrated the sight meter and the proper lighting for reading.

•

Domestics to Be Trained In Using Appliances

Training in the proper use of electrical appliances is included in a course being conducted by the Women's Division of WPA in Los Angeles as the result of assistance provided by the Electrical Development League of Southern California. Purpose of the activity is to provide domestic training to prepare women for housekeeping positions. Two hundred women will receive training during the 6-month period the school is in session.

The school is conducted in a large home which has been completely equipped with various kinds of housekeeping appliances. The electrical installation includes a range, refrigerator, washing machine, ironer and vacuum cleaner.

Full Details of Certificate Plan Show its Success

PROBABLY the best testimonial to the worthwhileness of the electrical merchandise certificate plan of the Coast Counties Gas & Electric Co. is that of the dealers in the territory who turned the certificates into sales. They only wished there were more. Some enthusiastic dealers went so far as to say that they had more certificates than cash during the height of the buying season, and that for putting pep into the usually dull months of January and February they have never seen its equal.

Few had any criticism at all to make, in itself a remarkable thing, since no matter how good a proposition may be there are some who will never be satisfied. Only one or two dealers felt that some of the sales went out of electrical channels and that in some cases merchandise not bearing Underwriters' label was sold, contrary to the intent of the plan.

These details, hard to control to perfection, were completely outweighed, however, by the remarkable spurt of buying which resulted from the unique way in which the utility paid its customers a "dividend" cashable in electrical appliances, as a Christmas present after a year of good business. A rate reduction would have been forgotten in a month. At best, spread over twelve months it would have been unfelt and unappreciated. But as a tangible dividend, cashable in electrical appliances or lamps, it emphasized the fact that greater use of electricity had brought about this rebate, and greater use in the future would help to bring it again.

Every customer, it will be remembered, was given a certificate equal in value to one-half of one month's bill, redeemable in electrical appliances or lamps at any accredited dealer in electrical wares. It could be used as cash in full or part payment on any appliance.

The success of this plan far exceeded even the rosiest expectations—for the volume of dealer sales was fifteen times greater than average for these months, and the dealers were busier than during the holiday rush. Manufacturers and jobbers cooperated with them in advertising, special demonstrations and sales

Dealers made special window displays and used large signs and banners to attract certificates

Summary of Results

Total certificates issued	17,055
Total redeemed	13,495
Not redeemed (indifference, unbelief, ignorance, prejudice, etc.)	3,560
Certificates returned; customers moved out of territory	141
Face value of total issued	$24,410.86
Face value certificates redeemed	$21,632.14
Value certificates not redeemed	$ 2,778.72
Value of those returned	$ 62.24
Total value outstanding	$ 2,716.48
Total appliances sold	6,280
Total customers purchasing Mazda lamps*	7,292
Total merchandise sales	13,572
Total amount of merchandise sales	$49,829.69
Total dealers participating	124
Total number meters	16,700
Santa Cruz District—Total	
Appliances sold	6,012
Lamp customers	3,422
Merchandise sales total	$21,287.43
Certificates redeemed	5,959
Face value of certificates	$ 9,071.55
Certificates issued	8,091
Value certificates issued	$10,458.77
Watsonville District—Total	
Appliances sold	3,817
Lamp customers	1,945
Merchandise sales total	$15,048.32
Certificates redeemed	3,796
Face value certificates	$ 6,226.41
Certificates issued	4,486
Value certificates issued	$ 6,829.86
Gilroy District—Total	
Appliances sold	2,011
Lamp customers	975
Merchandise sales total	$ 8,187.43
Certificates redeemed	2,010
Face value certificates	$ 3,370.39
Certificates issued	2,343
Value certificates issued	$ 3,727.93
Hollister District—Total	
Appliances sold	1,732
Lamp customers	950
Merchandise sales total	$ 5,306.51
Certificates redeemed	1,730
Face value certificates	$ 2,963.79
Certificates issued	2,135
Value certificates issued	$3,394.30

Value of certificates ranged from 4 cents to $39.00.
Average certificate value was $1.40.

Sales by Appliances

Ranges	6
Water heaters	3
Refrigerators	22
Portable air heaters	131
Washing machines	64
Ironing machines	13
Cookers and ovens	77
Grills and hot plates	280
Waffle irons	467
Hand irons	694
Radios	105
Toasters	1,586
Percolators	221
Coffee makers	146
Mixers	137
Electric clocks	418
Heating pads	268
Vacuum cleaners	46
Floor polishers	2
Table and floor lamps	1,493
Sun lamps	13
Heat lamps	43
Sewing machines	1
Vibrators	44
Mazda lamps	7,292*
Total number merchandise sales	13,572

* The total number of Mazda lamp sales shown above is actually the number of customers purchasing lamps of varied quantities on certificates. We estimate that an average of 7 lamps per customer was purchased, making a total of 51,044 lamps to fill consumer's empty sockets.

SELECT ONE OF THESE
GENERAL ELECTRIC HOME APPLIANCES
when redeeming your Coast Counties Gas and Electric Company Merchandise Gift Certificates

How one manufacturer tied in with all its dealers in advertising to attract as many certificates as possible

plans. In fact, it was an outstanding example of what can be accomplished through the complete cooperation of the utility, dealers, manufacturers and jobbers. Although slow to recognize the possibilities in some instances, another time will not catch many napping.

The secondary objective was to stimulate dealer sales and for that reason all certificates except those applied on ranges and water heaters were cashable only from an accredited local dealer. The dealer further cooperated in this matter in that certificates were discounted 10% when cashed by the Coast Counties Gas and Electric Co. This 10 per cent discount on the face value of the certificates, however, amounted to only 4.35 per cent reduction on the selling price of appliances, as total appliances sales more than doubled the face value of the certificates issued.

Under this plan the dealer obtained an exceptionally large appliance business during months ordinarily showing the lowest volume for the year. Certificates were accepted throughout January and February, in order that customers would not be rushed in having to make their appliance selection. Mazda lamps were included in the list of eligible items because many of the certificates were for an amount less than $1.00, due to the number of seasonal consumers in the territory. It was felt the small unit cost of the lamps would make it possible to cash any certificate. The number purchased bears out the theory that there are a surprising number of "empty sockets" in any territory. It also was an indication of the value of a home lighting service which has been carried on in part of this territory during the past year.

The third object of the plan was to add load to the lines. It will be a matter of some months before the load building value is fully determined. However, a conservative theoretical rating indicates the total expense to the company will be more than equaled in added revenue by the end of one year.

The following table showing the value of certificates issued, volume of merchandise purchased and number of dealers cooperating is sufficient evidence of the general acceptance of this plan by customers and dealers alike. The dealers appreciated the volume of business that was possible and went after their share by aggressive advertising, effective window trims and special merchandise offers. Some manufacturers and wholesalers also saw its possibilities and worked hard on dealer sales to get the best results.

The consumers were given an opportunity to purchase needed appliances at a season of the year in which they would normally have found it impossible to do so, and were given the advantage of added reduction, in that the January bills in the majority of instances included the holiday lighting, and were consequently a little in excess of their normal size.

The company has also gained through customer good will and better dealer cooperation, and feels that further cooperative moves of any nature will be more successful because of the good results secured during this campaign.

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Boat Trip to Reward Winners In Cooperative Sales Drive

Southern California Edison Co. Ltd. has inaugurated its third annual dealer cooperative electric refrigerator sales campaign, with more than 500 dealers and their salesmen taking part. The program is expected by the company to develop a new peak in electric refrigerator sales in Southern and Central California during the summer months.

Plans for the augmented 60-day sales drive were presented to dealers and their sales forces at a series of breakfast and dinner meetings directed by the Edison Company merchandise sales staff. S. F. Worswick, widely known as a sales counsellor, addressed each of the meetings.

Announcement was made by the company that the 300 salesmen who lead the field for their respective territories during the campaign will be rewarded with a week-end boat trip down the Lower California coast. The trip, by chartered steamer the week-end of July 10-12, is expected to rival the company's San Diego Exposition boat trip of last summer as a campaign interest stimulator.

The current campaign is backed by an advertising program utilizing newspaper and magazine space, radio, outdoor advertising, window display and a direct mail broadside designed for dealer use. Newspaper advertising, in 171 daily and weekly papers, stresses the all-electric kitchen theme, with campaign emphasis on the electric refrigerator. All of the company's advertising directs attention to dealers' stores, completely localizing the benefits by use of space in local newspapers.

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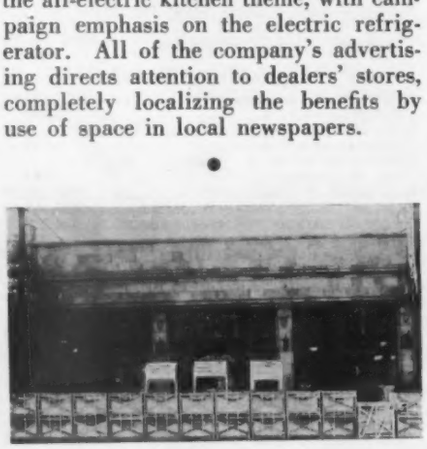

Twenty-six ranges on review, celebrating the record sales of 26 ranges in ten days, by the Vallejo Electric Light Co., Vallejo, Calif.

●

Offer Dealers Commissions on Water Heater Sales

Commissions on water heater sales made by plumbers and wiring contractors were announced by Utah Power & Light Co. and Bountiful Light & Power Co. during the recent campaign beginning in May and to end July 15. Wiring contractors and plumbers may record water heater prospects with the sales department of the power company. All such prospects that result in sales by the power company will bring a commission of $7.50 to the first dealer reporting the prospect.

A special form for name, address and other information is provided for recording prospects. In addition to the commission all qualified plumbing and wiring contractors turning in such prospects that are sold are to be given the job of installing the water heater.

●

• TO KEEP DEALERS INFORMED on the servicing of electrical appliances, the Pacific Gas & Electric Co., in its North San Francisco Bay division has inaugurated a series of training courses. Chet Merrill, dealer promotion representative of the company's sales department is in charge of classes averaging enrollments of more than 25, and attendances of nearly 100 per cent. Frequent changes in dealers' personnel were among the factors prompting the training.

Radio and Appliance Show In S. F. Next Month

Important feature of Fall Market Week, Aug. 3 to 8, at the Western Furniture Exchange, San Francisco, will be the Western Radio and Appliance Show. Five principal groups will form the bulk of the market week exhibits, and in addition to its part in the radio and appliance division, electricity will figure in the exhibits of lamps and giftwares.

Participating will be nearly every important manufacturer and wholesaler of radios and electric appliances, according to Cameron Ball, business manager of the exchange. To the dealer the show will afford an exceptional opportunity to inspect all of the latest models assembled together, and to consult personally with executives of the many merchandising organizations represented.

Daily luncheon programs at the Palace Hotel, which have formed an outstanding educational as well as social feature of the previous shows, are scheduled. The first of these, Aug. 3, will be a joint meeting with the Electrical Development League of San Francisco.

Continuing an event which has met with increasing enthusiasm the past three years, radio and appliance men will gather for their trade dinner in the Palace Hotel, the evening of Aug. 5. The dinner program will intersperse a variety of first class entertainment with a series of practical short talks by outstanding members of the industry.

"Harnessing New Forces" will be the market week slogan. Bearing this out at the show will be miniatures of a power plant dam and a section of the San Francisco-Oakland Bay Bridge.

In addition to products, merchandising innovations will be an important phase of the show. These will be discussed by merchandising authorities at the luncheon meetings.

Elimination of friction within the Western home furnishings industry is perhaps the show's greatest solution of mutual problems and the establishment of cooperative practices.

●

Utah Dealers Offered Low Financing Plan

Supplementing the F.H.A. plan for financing of electrical appliances, arrangements have been made in Utah and southeastern Idaho by Utah Power & Light Co. and dealers in that territory for financing of dealer paper on major appliances by First Security Corp. System of Banks. Such appliances as refrigerators, ranges, and water heaters can be sold by dealers under terms a

favorable as those of the F.H.A. plan, recently withdrawn.

Dealers make their own arrangements with the First Security Corp. System for each contract and get a down payment of at least 10 per cent or more of the purchase price. Lower minimum down payments are available on appliances selling at less than $100.

●

Cooperation Scores Success in San Joaquin Valley

Termed one of the most successful cooperative services ever to have been rendered to electrical dealers by a utility was the five-night sales training school and three-week sales lecture tour recently conducted throughout territory served by the San Joaquin Light & Power Corp.

Sponsored by the company's merchandising division, the school and tour were conducted by Samuel F. Worswick, Pacific Coast sales counselor. Three broad classifications composed the audiences: Employees in each of the San Joaquin Power's districts constituted 15 groups to whom Mr. Worswick gave afternoon lectures; dealers and their salesmen, numbering 572, were those who attended 10 dinner meetings, and civic club members, totalling 683, heard the presentation at luncheons.

Surprise of the training school was the fact that voluntary attendance grew from 392 the first night to 576 the fifth and closing night—this in contrast to the usual attendance-dwindle. Attendance for the five nights totalled 2,388, including dealers from the most remote points in the system's territory.

Mr. Worswick, drawing from his own 30-years' selling experience, covered selling from personal appearance and telephone contacts to closing sales and post-sale service. While his address was particularly to dealers, San Joaquin employees found particular benefit in lectures covering personal appearance, courtesy, public relations, rendering service and similar sub-topics.

Mr. Worswick commended the dealer-San Joaquin cooperative policy as one most likely to produce lasting benefits for the dealer, through increased sales; for the utility, through greater electrical consumption, and to the public, through constantly lower rates resulting from increased electrical use. He further commended dealers for their interest in the San Joaquin company's monthly sales-aid material and for their increasing activity in local cooperative electrical appliance societies.

A skit emphasizing salient points in the sales lectures was a feature of the final session. San Joaquin employees Amby Jones Willitt and Max Hoen effectively carried leading roles.

This month's cooperative activities in the valley are evident in newspaper ads captioned "Take a Vacation . . . In Your Own Kitchen." They feature electric roasters and cookers, and list by cities and towns the dealers in electrical appliances throughout the area.

Also available to dealers, in limited numbers upon request, is the pamphlet, "What Every Woman Should Know About Her Electric Refrigerator," published by the dealer cooperative service of the San Joaquin company.

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• DEALERS in Vancouver, Wash., cooperated with the Vancouver Columbian, local newspaper, in a cooking school late in May. Participating dealers were Mack's Radio and Electric Co., Sparks Hardware Co., Stanley's Radio and Electric Co., Good Housekeeping, Wolf Electric Co. and Montgomery Ward & Co.

DEALER SALES REPORTS—MAY 1936

A Summary of Dealer Reports Compiled by Associations, Societies, Bureaus, or Dealer Contact Department of Utilities

APPLIANCE	P. G. & E. Co.[1]		San Diego Cons. G. & E. Co.[2]		San Joaquin Lt. & P. Corp.[3]		So. Calif. Edison Co., Ltd.[4]		Utah Power & Lt. Co.[5]		Wash. Water Power Co.[6]	
	*May. 1936	Year to date	May. 1936	Year to date	May. 1936	Year to date	May. 1936	Year to date	‡April 1936	4 Months 1936	May. 1936	Year to date
Ranges	326	1,501	35	230	164	.....	551	2,793	611	1,247	228	829
Water Heaters	205	1,047	35	285	88	.....	244	1,340	230	344	183	.....
Air Heaters—aux.	124	4,144	40	715	5	.....	43	726	19	517	33	614
Air Heaters, 220	43	357	.....	.....	61	.....	.....	.....	.....	.....	.....	.....
Refrigerators	4,463	17,583	800	2,910	1,375	.....	6,180	20,364	98	601	1,274	3,516
Dishwashers	24	140	.....	.....	4	.....	.....	.....	2	29	2	4
Washers	2,609	14,637	350	1,505	487	.....	2,766	14,288	1,237	3,915	553	2,456
Ironers	847	4,696	60	365	94	.....	638	2,972	55	212	79	342
Vac. Cleaners	2,222	11,024	150	790	89	.....	982	4,999	507	2,090	301	1,079
Radios	7,442	41,426	750	4,625	445	.....	3,736	22,317	1,126	5,052	640	4,893
Mixers	413	5,803	250	770	93	.....	407	1,952	625	1,314	309	888
Cookers, Casseroles	.....	.....	50	220	18	.....	97	345	10	52	315	965
Irons	.....	.....	400	1,755	378	.....	1,263	6,801	1,359	4,026	813	3,049
Waffle Irons	.....	.....	150	915	102	.....	348	2,138	566	1,717	170	846
Toasters	.....	.....	150	935	135	.....	454	2,732	941	2,408	377	2,243
Table Stoves, etc	.....	.....	40	225	155	.....	225	1,310	1,277	4,105	135	769
Heating Pads	.....	.....	35	710	20	.....	101	1,074	148	819	94	665
Curling Irons	.....	.....	.....	.....	.....	.....	33	255	469	1,071	.....	.....
Coffee Makers	.....	.....	200	1,075	114	.....	313	1,735	503	4,105	317	1,721
Sewing Machines	1,104	6,419	55	220	.....	.....	.....	.....	116	351	116	372
Clocks	.....	.....	.....	.....	125	.....	376	2,176	462	1,246	195	1,052
Fans	.....	.....	.....	.....	196	.....	251	391	269	328	181	250
Floor Polishers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sun Lamps	.....	.....	.....	.....	.....	.....	24	306	6	47	.....	25
Reflector Lamps	.....	.....	.....	.....	101	.....	.....	.....	1,381	2,603	1,209	8,486
Misc. Lamps	.....	.....	.....	.....	.....	.....	639	3,554	1,698	5,774	.....	.....
Yard Lights	.....	.....	.....	.....	49	.....	.....	.....	.....	.....	.....	.....
Misc. Small Appl	.....	.....	250	1,250	271	.....	.....	.....	.....	.....	.....	.....
Total Dealers	1,400	.....	.....	.....	.....	.....	555	555	.....	.....	.....	.....
No. Reporting	.....	.....	.....	.....	158	159†	523	532†	.....	.....	.....	.....

[1] P. G. and E. reports obtained only on major appliances upon which accurate reports are available from dealers' accounts. Ranges, water heaters, and air heaters include company and dealer sales. Total dealers include gas as well as electric dealers. * Previous month's figures shown under current month's heading.

[2] Gathered by Bureau of Radio and Electric Appliances of San Diego County. Estimated monthly sales figures used in this table. Clocks, fans included under miscellaneous.

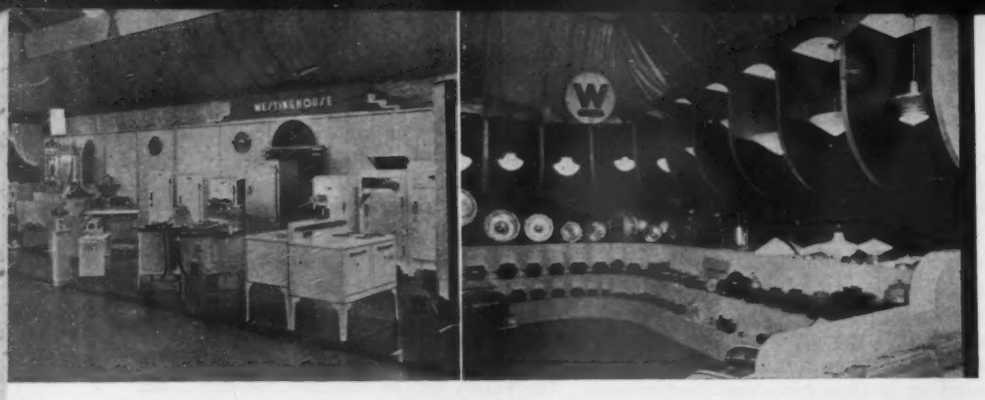
[3] Includes dealer reports from Midland Counties Public Service Corp. territory also. Compiled by Valley Electrical Supply Co.

[4] Includes reports from dealers on San Joaquin Valley system of the company as well as Southern California areas served.

[5] Includes Utah Power & Light Co. territory in Utah, Idaho and Wyoming. Also Western Colorado Power Co. territory.

[6] Dealer sales only for Spokane and company's territory. Company sales not included. Table stoves, grills included with cookers.

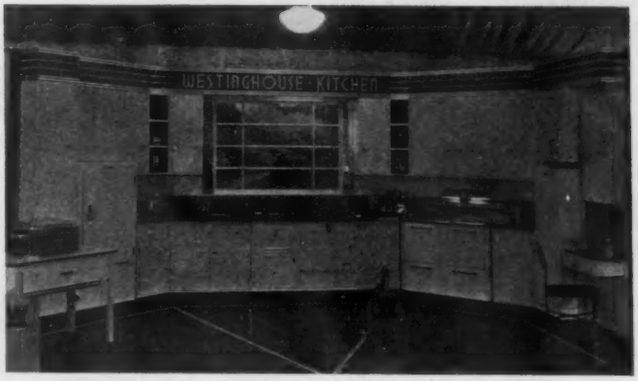
† Arithmetical average of number of dealers reporting. ‡Latest figures available up to time of going to press.



With the beautiful electric kitchen shown below, Westinghouse features its display of domestic and lighting equipment at the Palace of Electricity, San Diego Exposition (left). Complete and operating, it is used to demonstrate the ease of housekeeping in a modern electric home to throngs of exposition visitors

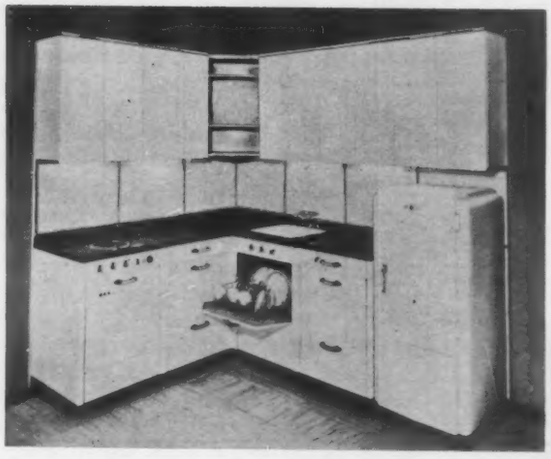
Kitchen News + +

At a pace that promises to outdo bathrooms as America's delux room of the house, electric kitchens are on every tongue and in the columns of every magazine. Alert manufacturers, distributors and dealers are capitalizing on this universal publicity and upon the present home building boom. Some of the significant news in electric kitchens, each containing a sales idea and opportunity, are pictured here.



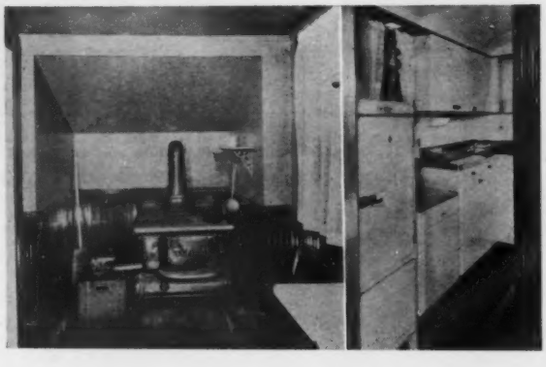
Kitchen planning bureaus are inviting prospects by radio, newspaper, and direct invitation, to drop in and discuss plans for modernizing their kitchens in old homes, or designing the most efficient new kitchens in homes under construction. Several utilities have established such bureaus, whose activity has built business for dealers, wiring contractors, and paint, linoleum and cabinet people

One such bureau is doing a fine work in Portland. The home lighting service and kitchen planning have been given an attractive booth by Portland General Electric Co., and daily radio home service programs tell the public of the advice and help in kitchen planning they may have by a call at this bureau. Photos of "before and after" kitchens and complete visual demonstration of improvements are on display



While leading manufacturers in kitchen appliances have miniature kitchen kits available, independent dealers can have one of their own, recommended by the National Kitchen Modernizing Bureau. It is called "Unipart", and made by H. P. Luhn & Associates, New York City

New General Electric Unit Kitchen, which can be installed a unit at a time or all at once. Flexible, low priced, it is designed to appeal to those who modernize old houses, build low cost homes, or for apartment houses. It contains range, new type dishwasher sink, and refrigerator



Even Frigidaire tells a kitchen modernization story in the General Motors traveling show. The old time kitchen (left) is contrasted with the extremely compact modern electric kitchen

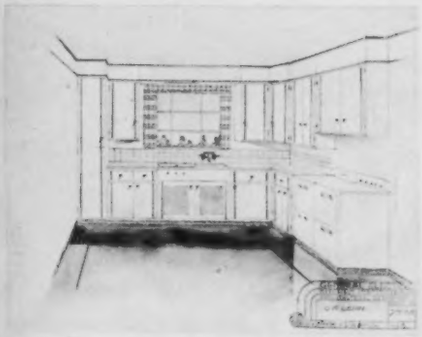
ELECTRICAL WEST COOPERATIVE

SALES APPLIANCE ★ GUIDE

ELECTRIC KITCHENS ◆

JULY, 1936

. . . . Copyright, 1936, by Electrical West, 883 Mission St., San Francisco



After a survey sheet has been filled out, the kitchen planning bureau turns out a drawing and floor plan like the above to present to the prospect. Blueprints are then made for the workmen and subcontractors for installation

A Gold Mine of Opportunity

for Dealers and Salesmen in Kitchen Modernization

What is a Kitchen?

Today's kitchen is a concentration of electrical appliances that you can sell, either one at a time, or in groups, or all at once. The complete electric kitchen starts with the *range*, and *refrigerator*, for cooking food and storing it safely. But it includes too, a *water heater*, and *dishwasher*, as basic needs. It is still incomplete in final convenience until it has a *garbage disposal unit, ventilating fan, mixer* and attachments, *clock*, plenty of *wiring outlets* and good *lighting units*. Pleasureable refinements to complete it include a small *radio*, a *telephone* extension, and other appliances such as *toaster, roaster, egg cooker, waffle iron, grill, plate warmer* and *percolator* or *coffee maker*.

Prospects—

for electric kitchens include everyone to whom you have sold a range and refrigerator, (look up your sales records and call back—they may be thinking of remodeling *now*). Every builder of new homes, and there are many today, is a prospect. Tell him the selling appeal of electric kitchens now being built up by all women's magazines, by national advertising, by utility publicity and cooking schools.

What it Means to You—

A kitchen plan means that you follow up each sale of refrigerator or range for all the list of appliances above, keeps a good customer on the books, makes a booster of her for your store, gives you a fine example to point to in making more sales.

Stirring up Interest—

in kitchens today is a flood of publicity the likes of which has never been seen—all designed to steer prospects to you to be closed. There are the National Kitchen Modernization Bureau, all its local bureaus, electric leagues and societies, your utility, and all the women's magazines telling the story. Your distributor and the manufacturer of appliances has a complete program for you to fit into and apply to your own store. *Investigate it.* There are moving pictures by General Electric, Westinghouse, McCall's, and others. Building is on the up-turn and the opportunity is ripe *NOW*.

Have a Model Kitchen—

Install a kitchen, all connected, in your store. Use it to sell from. Use it for cooking classes, for demonstrations. It will dress up your store and attract prospects.

Sales Guides—

To sell the range see Electrical West Appliance Sales Guide for March; the refrigerator, the Sales Guide for April; for water heaters the guide for May.

Planning Service—

If your business warrants it, set up a kitchen planning service of your own. If not, take advantage of such services as your manufacturers and your utility or league offer. In any case do a thorough job of planning. A tie-in with a local cabinet or built-in fixture shop, with painters and linoleum and glass people, will be beneficial to all of you. But assume the leadership and the coordination and direction of the kitchen yourself, and to the major selling, otherwise your electric appliances may be side tracked.

Present a Picture—

Either by a drawing, in color, or by means of a photograph, or at least by using a little kitchen kit to illustrate the way the finished kitchen will look, so that your prospect will look forward to that completed picture. Some dealers have found that a colored picture, framed, and presented to the prospect and hung up in her own kitchen where she can look at it often, has hastened the final completion of the job.

Using a miniature kitchen kit

SALES TALKS THAT

CASE HISTORY NO. 20

Selling an Electric Kitchen

CAPITALIZING on all the national publicity and the universal interest in electric kitchens, Bill Smith, master salesman, like an ever-increasing number of progressive electrical dealers, has set up to render his customers complete electric kitchen service—either step by step or all in one order. He has made necessary arrangements with the manufacturers whose lines he sells for their full support and facilities. He has also made construction arrangements with a local builder or contractor and with local mill-work or kitchen cabinet people, plumbers, painters and linoleum people for a coordinated job of kitchen modernization for his customers. And to obtain his prospects he has carefully gone over his list of purchasers of ranges and refrigerators as the first line of possible buyers. He also watches all new building in the neighborhood for a chance to sell a complete electric kitchen in new homes.

Mrs. Jones, to whom he had sold a range and refrigerator, has come in at his invitation to see the dishwasher demonstrated for her and to talk over the remodeling of her entire kitchen. He has just finished demonstrating by means of an ingenious little kit of miniatures, the number of waste steps she takes in her present kitchen, and how many she might save in the remodeled and rearranged kitchen. In his presentation he has repeatedly found her opposed to only one thing, the dishwasher, and so decides to concentrate on it.

★ ★ ★

BILL: "You are already enjoying the food savings and manifold conveniences of your electric refrigerator, Mrs. Jones. And you know how tasty and appetizing the food prepared on your range is. You've already experienced not only the convenience, the cleanliness, but also the economy of these units. Now your kitchen is almost complete on the preparation side of the meal. But on the most disagreeable task of all, cleaning up the dishes afterward, most homes are still primitive, aren't they? Now for the first time since dishwashing was invented, we have an electrical device that modernizes your kitchen completely—the dishwasher."

MRS. JONES: "Yes, I know. I hate washing dishes. I always did. But somehow I don't feel that I ought to shirk my duty. And somehow a dishwasher seems to be an extravagance just for my own benefit, not the family's."

BILL: "It is mighty thoughtful of you to think of it so unselfishly, Mrs. Jones. And I appreciate that we all feel that our duty should be something to bring us penance—something we dislike so much that we derive much more merit by doing it. But really, is that true these days? We no longer regard it so as far as a vacuum cleaner is concerned to help us take care of the balance of the house, do we? It is a real sanitary necessity. And we are just beginning to realize that a dishwasher is a sanitary necessity too. If I showed you that one was necessary to the health of your entire family, you'd feel differently about your duty, wouldn't you, Mrs. Jones?"

MRS. JONES: "Why, yes, that would be different, but I don't quite see . . ."

BILL: "Like most things, the most obvious is something least seen, isn't that so? Now you know how your milk bottles are sterilized at the dairy, don't you—by steaming hot water—water far too hot for your hands and skin. That's the temperature the water should be for dishes too. But naturally your hands can't stand it. As it is they do get all red and rough in ordinary dishwater, with its strong soap solution, do they not?"

MRS. JONES: "I'm afraid so."

BILL: "Now any woman wants her hands to remain as young as her face, to be admired and cherished for their soft loveliness. Whether her husband says so or not, he does notice such details. And it certainly isn't good for hands—or for the face either, standing over a steaming dishpan—to continue in this old fashioned way of cleaning dishes. But I told you I'd show how all this meant a great deal to all the family."

MRS. JONES: "Yes, please."

SHE has obviously been affected by this picture of what dish-washing has done to her hands and complexion. yet doesn't want to make her own needs in this feminine desire to stay young and lovely be the only point on which to satisfy her real yearning to be relieved of dish-washing. Bill sensed this and swung into the family appeal, after he made sure that this strong sales point was made.

BILL: "You can appreciate how very hot water will sterilize your dishes as you couldn't in any other way. Now how often, when one of the children had a cold, have you thought you'd like to keep it from spreading to the rest of the family? Yet at a time like that, with all your attention

Sold APPLIANCES

needed by the one who is ill, how little time you've had to separately wash the dishes or to sterilize them afterward. How you would appreciate the relief from dishwashing at a time like that, so that you could give all of your attention to the family needs."

MRS. JONES: "I should say so. But still that's just a rare occasion, and really not enough to justify the expense of a dishwasher."

BILL: "Certainly, and it is to be hoped always, very rare, isn't that so? But that isn't the only way in which a dishwasher serves the family, Mrs. Jones. Besides what it saves you physically in standing on your feet long after the meal is finished, in saving your hands and complexion, and in giving you more appetite for the meal because you do not have to look forward to the long process of cleaning up afterward, it also saves in other ways. It saves your disposition so that you can feel at your best with your family at mealtime. It saves on linen—for there are no dish towels or dishrags or aprons needed for dishwashing. And much more important, it saves your china. There is so much less chance to break dishes when they are not handled in soapy, slippery dishwater. The expense and bother of replacing single pieces of your best china—some of them very difficult to replace, I am sure—are reduced to almost nothing."

MRS. JONES: "Yes, I can see that would be an item, but still, though I want one ever so badly, still I can just hear what my husband would say."

BILL: "I know how husbands are, Mrs. Jones, for I'm often that way myself if I can't see where we are all going to benefit from some household purchase. Yet when it can be shown that something will be insurance to the health of all the family—why I could scare the whole family if I dared show you the millions of germs that live and breed in the average dishrag—I am much more easily convinced. And when it means more of my wife's company, right after dinner, when we both like to relax and enjoy the electrically cooked dinner, I am much more sold on a dishwasher. Then there's the matter of servants. Do you have a maid, either all the time or on occasions?"

MRS. JONES: "I wish I did have. Once in a while when we're entertaining I have someone come in and help."

BILL: "Yes, and the real help comes in cleaning up the dishes, doesn't it, so that you can be free to be attentive to your guests? With a dishwasher you might not have to have a maid. If you do, how much easier to get and keep a good one, and how much surer of the dishes you'd be if you had a dishwasher."

MRS. JONES: "That's true, but do they really wash clean? And how about pots and pans?"

BILL realizes in this an effort to shift ground to some possible objection, for Mrs. Jones really wants the dishwasher, but is still afraid to say yes. But it gives Bill a chance to sum up several other good points for the all-electric kitchen.

BILL: "Pots and pans? I'm glad you brought that up, Mrs. Jones, for here is one of the chief virtues of an all-electric kitchen. You have already noticed, from using your electric range, how clean the outside of your kettles and pans remain, with the clean electric heat. You've also learned how to cook deliciously with almost no water, at low temperatures, retaining all the healthful minerals and vitamins by electric cookery. As a rule, pots and pans need no treatment other than that you give any other dishes in your dishwasher. But in case something does stick to the bottom, at least that is all you do have to attend to for the entire meal. The dishwasher does all the rest. Another thing, even if your aren't home, are away on vacation or indisposed, your children or your husband can operate it without a bit of fuss and you know your china is safe and the results satisfactory. No more coming home to a houseful of dirty dishes. Wouldn't that be something?"

MRS. JONES: "You seem to know men pretty well. It does seem expensive though, just for a dishwasher."

BILL now comes up against the price obstacle and so he marshalls all his sales points to build up far greater value for the appliance than the price asked, at the same time making it possible to scale down to her own situation if need be.

BILL: "Expensive, yes, in a way, and yet, is it expensive when we consider that every day, for once or twice or even three times each day, it will keep your hands out of steaming water, will sterilize and clean and dry your dishes, will prevent breakage, will save your dishcloths and laundrying of them, will give you more time with your family? You have never considered the investment in your electric washing machine expensive, have you, even though it cost just as much as this single dishwasher unit? Every advantage of your electric clothes washer over the old method can be applied to the electric dishwasher with the *added* advantage of being called into use from seven to 21 times per week instead of once or twice and on a job that cannot be sent out from the house. From a sanitary standpoint alone, for a time saving reason alone, or for the long time economy alone, the dishwasher has more rights of its own in a modern kitchen than the clothes washer which you now feel to be indispensable in your laundry. Don't you think so, Mrs. Jones?"

MRS. JONES: "I suppose that is true, still it is a good deal of money, especially for the entire sink and cabinets."

BILL: "If you are satisfied with your present sink and drainboards, although we are remodeling here, it will cost no more than a good washing machine just for the dishwasher unit alone. Would that be satisfactory, Mrs. Jones?"

MRS. JONES: "No, while we're about it, we might as well have it all nice and new. I'm going to have the whole dishwasher sink or nothing. Everything you've told me is true and your other appliances—the range and refrigerator and washer all have been fine. We are through with dishes at our house."

BILL: "I know just how grand that makes you feel—and I certainly compliment you on your declaration of independence. All your neighbors will envy you, and your husband, if he's like most men, will be bragging about it too.

CALIFORNIA OREGON POWER CO. • PORTLAND GENERAL ELECTRIC CO.
MOUNTAIN STATES POWER CO. • PUGET SOUND POWER & LIGHT CO.
PACIFIC POWER & LIGHT CO. • IDAHO POWER CO.
NORTHWESTERN ELECTRIC CO. • WASHINGTON WATER POWER CO.
UTAH POWER & LIGHT CO.

An attractive display kitchen like this of Alca Electric Co., Vallejo, serves to demonstrate visually what can be accomplished in any prospect's home

What the customer gets from buying

The Electric Kitchen

What a Cheerful Place to Work

Attractive, modern to the last detail, finest available in equipment; colorful and cheerful. Like a dream kitchen. The envy and admiration of all friends and neighbors. Harmony of color and atmosphere means a better disposition.

So much Easier

Just as a factory is arranged to eliminate lost motion, the electric kitchen is arranged to save steps, standing, and hence backache and tired feet. Food goes logically from store delivery into preservation and storage, thence to preparation and cooking, and to serving. Dishes are automatically cleaned. Homemaker remains young and refreshed and attractive.

Better Health for the Family

Tastier, more attractive foods, more appetizing. More appetite for the housewife who is not tired out. More time with her family and husband instead of in the kitchen.

Comfort in the Kitchen

No waste heat; so much cooler in summer. No smoke or fumes; so much fresher air.

More Freedom

Easier, quicker food preparation and serving allows time for other affairs. Allows time with guests after serving perfect dinners.

Truly Economical

Range and refrigerator save on food costs. Kitchen saves on upkeep and cleaning costs. Seldom need servant. Total investment not more than that for a new car, yet lasts years longer, serves the family every meal, three times daily.

Charming Guest Room

Attractive kitchen is a modern gathering place for informal entertainment, for party snacks, for refreshments. An electric kitchen is ideal for this.

The Dishwasher

Better Health

Dishes not only look cleaner, but *are* cleaner. Hotter water than hands can stand sterilize all dishes. Bacteria cannot live in such water. No transmission of colds or other illness through dishes. No more germ-breeding dishrag.

Release from the Kitchen

More time to spend with husband and family. Early release to attend to shopping, go to show, visit with friends as hostess, attend P.T.A. or other affairs. When ill or on vacation husband or children can operate without complaint. (A statistician has estimated time spent by average woman washing dishes aggregates four full years; in 15 years she washes nine piles of dishes higher than the Empire State Building; that 39.5 per cent of husbands help with dishes and hate it. Cooking takes 19.3 per cent of her total time; dishes chaim 13.6.)

Keep Hands Attractive

"Dishpan hands" can't be saved by creams and lotions, but by a dishwasher. Skin keeps clear and fresh, complexion saved by not standing over hot dishpan; hairdress also saved by not standing over a steaming dishpan. Feet saved from long standing. Better disposition and appetite because there is no looking forward to cleaning up a mess after dinner.

Saves on Dishes

Slippery dishwater causes many dishes to slip out of hands and break. Expensive sets cannot be replaced. Even when washed under supervision of children, maid or husband, less chance of breakage. Saves linen, too, for no dish towels are needed. No maid needed, so save on wages, board and room, back talk and concern.

Waste Disposal Unit

"Good riddance to bad garbage"

Solves Most Disagreeable Problem

of housekeeping—what to do about garbage. Disposes of food wastes as fast as made, before they have chance to stand and putrify in unsanitary garbage cans. No greasy litter to be cleaned out of sink. Waste material reduced to thin, harmless pulp, bones, fruit pits, corn cobs, leaves and peelings and all, and washed out with sewage. No wrapping or handling of obnoxious garbage.

More Sanitary

It just isn't possible to keep a garbage can sanitary. No place for germs to collect and grow. Cleans itself automatically, with a flush of cold water.

Sweet Smelling

No odors of onions of cantaloupes to remain and generate an obnoxious condition, awaiting arrival of the garbage man.

Saves Steps and Attention

Without leaving the sink, food preparation peelings and wastes, and plate scrapings and bones go into the unit. A switch is turned. Cold water is allowed to run a bit, and every trace is removed as if by magic. No chasing out to the garbage can in all kinds of weather.

Ants and Animals Keep Away

No more "open house" for stray dogs, cats, or rats; or for trains of ants or roaches or flies. Garbage can may be discarded. Only rubbish which does not putrify or decay needs to be carted off, such as bottles and cans and papers. Less frequent service needed. Saving of collection costs.

Really Good for Plumbing

Gentle polishing action of ground up materials scours plumbing system; avoids large chunks to clog sewers. Works equally well connected to septic tank or city sewers.

Pride in Being Up-to-date

Most modern and sanitary home service. Peace of mind resulting from solution of the last of disagreeable home problems—electrically.

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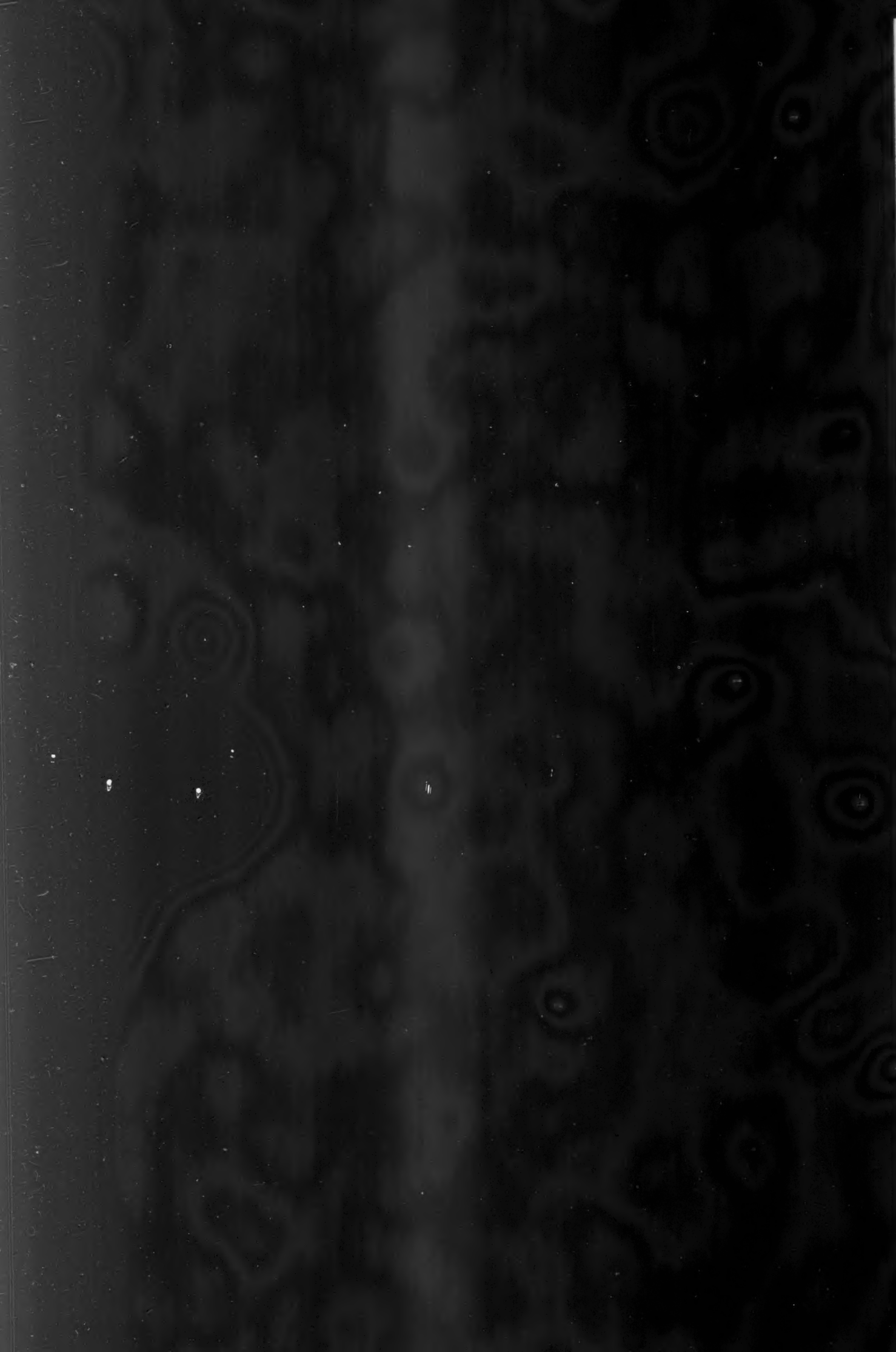
Another concentrated, usable, and sales making Sales Guide will appear in these columns each month. Next—the Radio.



Bill Jones Speaks + + +

About Lobbyists

Just who Bill Jones is has bothered a good many of our readers. So we asked his creator to furnish us a portrait. Adept not alone in the dressing down of his friend the manager but in dressing down inlay woodwork, too, Bill Jones himself sent this portrait of Bill Jones, done in select grained veneers of rich colors. Its original hangs over the editor's desk for all who visit to see in all of its subtle craftsmanship and selected colors and textures. This, then, is Bill Jones

"YOU know, Bill," said the Manager, "I sometimes wonder if I am losing my mind, or has it already been lost? I am thinking about Congress and its interminable investigating committees. It would be funny if it was not also tragic. Investigating anything and everything, spending millions of dollars to smear this or that, always one-sided, never fair, and almost never getting anywhere. Take the lobbying investigation for example. What's it all for?"

"Well," said Bill, "one answer is that the politician believes that the mental age of the average voter is about eight years, so he appeals to that standard—and is elected. But those Congressional investigations of the lobbyists are also the Congressional way of itself lobbying to buy the votes of the people. Probably it works, or they wouldn't keep it up. This sort of thing always reminds me of old Colonel Windslow who was the foremost, and the most aggressive Democrat in Placerville some years after that beautiful little city ceased to be called Hangtown. Placerville in those days had decided Republican tendencies, but nothing dismayed the Colonel or diluted his belief in the cause of Democracy. He spent his money lavishly, depositing considerable sums with each bartender to bolster up the spirit of Right. In his speeches he constantly emphasized the idealism of his party, its lofty aims and its Utopian purposes, very much as politicians do today. He vigorously asserted the lily-whiteness of his own party and its members, scornfully asserted that the Republicans were all villains and tools of the mining companies. The election was a torrid one; plenty of casualties and one fatality. At last when the vote was counted, the Colonel and his handful of followers were completely snowed under. For a moment he was disconsolate but not for long. 'Yessir, the forces of righteousness have gone down to defeat, but we made a glorious fight! We would have won, but the damned dirty crooks bought us, yessir.'

"It is a fearful thing," continued Bill, "to loosely accuse the members of the two houses of Congress of being crooked and capable of receiving bribes. Just think of it! Probably every one of those members once had a mother. A doting and hopeful mother who dreamed of big things for her son —her little boy. Oh, it's awful!"

"Well, who accuses them of being crooks?" snapped the Manager. "I know some of them personally and I——"

"Why the government does. It has had sleuths watching on the job hasn't it? The Black Committee confides to all the world that more than half of the members of Congress can be bought—will sell out not only their own honor but that of their country—your country and mine. What are we coming to? Our own trusted servants knifing us—the forgotten people—in the back," mused Bill.

"Just a minute," said the Manager. "How do you get that way? I don't remember that the Black Committee ever even intimated, to say nothing of having asserted, that most—or any—of the Congressmen and Senators are crooked. The committee may be trying to convince the people that all lobbyists are villains who resort to various forms of bribery, but ——"

"Just so," interrupted Bill. "But who are the lobbyists going to bribe if they don't bribe Congressmen and Senators; and how can they do so unless said Congressmen and Senators are willing to take the bribes; and what is the use of the lobbyist buying members unless he can get a majority? Therefore, it must be that the lobbyist, the administration and the Black Committee all have very good reason to believe that something more than a majority of our lawmakers are susceptible to bribery. Otherwise, why all the fuss about the lobbyists?

"Just picture a scene in either house as the roll is being called on some inspirational measure such as the Florida shipping canal, Quoddy, or still more likely some measure in which utilities are directly interested. Slowly the vote is being recorded. The speaker feels an internal glow as he looks down into the beaming (and government-barbered) faces before him. It is a warm day; he drifts into reverie. Over the hum of voices below him he hears the song of happy birds chirping in the 100-mile-wide belt of trees from Canada to Mexico, planted by the heretofore forgotten man. In vision he sees the glories of a re-made and beautiful nation in which labor and the necessity for self-denial has been banished, wherein the beneficent forces of government lifts all problems from the shoulders of struggling humanity and takes it to itself. Then comes an interruption. The clerk hands the roll call and the vote up to his desk. Again he smiles benignly down into those faces shining with the Holy Light, annointed and sanctified by high idealism. He glances at the slip of paper before him. He starts. He bangs the gavel and shouts angrily. 'The measure is defeated. The dirty lobbyists crooks have bought us.'

"Anyway," concluded Bill, "it is certain that the boys of these committees are afraid. Afraid that the lobbyist will bribe them—or maybe afraid that they won't. I don't know."

Killowhatts at Work and at Play

By SQUIRE PHINEAS BRIERWOOD

WELL, friends, it does beat all get-out what's been done for us country folks up here in the Hollow lately by those Electric fellows. Take all these Electric Workmen on my farm—well, you can't tire 'em out, you just can't wear 'em out, and it seems that the harder they work the better they like it. Of course you know that Winter is over now and Spring has broke (even the old Farmers' Almanac says that)—but up here this NEW ERA I've been telling you about is so far ahead of itself that I have three seasons in operation on my farm right now—Winter, Spring, and early Summer, and ELECTRICITY is in charge of the whole shebang.

Guess I'd better start by telling you about the big "BLOW-OUT" we had New Year's Eve. I butchered early in December and Ma had her department running fine, head-cheese and souse all made, sausage all stuffed, pigs feet packed away and things like that. For this occasion she made a lot of mince and pumpkin pies, a big batch of crullers and for the PEACE of RESISTANCE we roasted a hundred pound chote—did that, by the way, outdoors in the electric pit. I looked the cellar over and found my stock ample; half barrel of the old, full barrel of the new and a five-gallon jug of straight-cut. Ma got to worrying a little bit, said she thought a storm was brewing—she could feel it in her bones or something. I said let her come, I was just laying for it anyway. You see she didn't know that the electric fellow had fixed things to take care of that. You know back in the old days (B.N.E.—Before the New Era) us farmers either shoveled snow or ploughed right through it. This electric fellow rigged up a small round machine right on top of the barn, hooked fast to it the big thermometer Lem Brewster gave me for a Christmas present. When the machine said "CHANGE", the weather would do it, an when it said "SNOW" right then those KILLOWHATTS jumped in and took complete control of the situation by heatin' up some wires the fellow had strung along the paths leading to the corn-crib, stable, chicken-house, pig-pen and barn. Sure enough Ma was right and the day before New Years it was a snowing and a blowing—snowed all night in fact. I got up kinda early figuring I had a lot of shoveling to do—plumb forgot all about my ELECTRIC SNOW-SHOVELERS but those darn Killowhatts were right out there on the job licking up the snow as fast as it fell, in fact almost reaching up after it, and my walks were as clean and dry as a whistle. BOY, WAS I PROUD? Of course I went right back to bed again.

Some time later Ma says how you going to keep all those horses warm when the folks get here this afternoon, you know the barn won't hold them all. I told her that was already and dissipated. That kinda took the tuck out of her for a minute. Anyway long about two the folks started to come and Ned Winuns and his family got here first. I had him drive his team right under the shed alongside the barn and blanket them. Then I connected to the hames a wire or what the electric fellow said was a plug (not the kind Caleb drives) and this was all hooked up to the killowhatts. Then I turned in the Horse Button. Of course one of the last ones to arrive would be Caleb and Lizzie. He drove old Bess and as usual he had that circus harness of his'n on her—lot of shiny metal on it. We plugged his plug into the electric system and all went in the house.

Ma had fairly busted herself with the dinner. She certainly looked perty with that black alpacka dress on and that old Paisley shawl flung kinda loose like around her shoulders—a sight for anybody with eye trouble. As for me I had a darn hard time bendin' over with that stiff boosum shirt of mine. Anyhow, we had two long tables right acrost the living-room and Ma had got out all the knives and forks and spoons with the big "B" on 'em. Everybody was a sittin' around eaten and drinken and laffen and having a good time when all of a sudden the RED LIGHT showed on Button number 7—that was the report button of my ELECTRIC DOG and of course the RED meant that something was wrong out to the barn. Guess I didn't tell you before about that DOG business, did I?

Well, you do remember, I guess, I did tell you about the Watchin Eye the electric fellow hung up on the barn under the eaves. When he hung it there, he said he would connect it in some way with that old cast-iron bulldog I had up there as a sort of weather vane. Now I always did have an idea that the circus harness that Caleb had on old Bess would some day get him into trouble and that was the first thing I thought about as we all rushed out doors to see just what was the matter. He came along—a sputtering and a jawing away—probably had too much out of barrel number one—and when he saw what had happened he was madder than ever. I told you about all that metal on the harness, well, when the killowhatts really got right down to work keeping all them horses warm that outfit of his on old Bess heated up a mite too much and when it got too warm around the breechin, she started kicking the stuffing out of the old cutter. Caleb was sure riled up and I'll never forget what he said—"Brierwood, dum you, you're a limb of the Devil and the biggest SNARL-FRIZZLER in Squirrel Hollow. Your confounded contraptions will kill us all up here yet."

"Wait a minute, Caleb, wait a min-

ute. Hold your horses there", I says to him. "You told me yourself that when Bess passed my place she always perked right up, didn't you? What she has been gitten is a lot of FREE ELECTRIC energy and consarne your hide you know it. Bess never to my mind had enough gumption to kick before she came here. And another thing—I've noticed that the day before you did all that plowing you walked your team up and down the road in front of my place. I know what you're doing—you're electrifying them so they'll do more work". Well, after all this blow-out Caleb cooled off some—I did myself and we all went back in the house. I went down cellar, drew another big pitcher full, and the party started all over again.

Before I finished this report I did want to tell you how the RE-MOTE ELECTRIC TRACTOR CONTROL is going full blast. You know how I told you that the electric fellow said I could put the tractor in the field, rig up a CONTROL station—seems like that was what he called it—and the machine would run itself. I plumb forgot he said an EYE on it would do the same thing. Well one morning I figured I'd plow the lower five and put it to corn so I run the tractor down there and headed her South along the fence. Went back to the house then and on the top of the stump of the old chestnut tree he had fixed the button. I gave it a push and, by gravy, darn it all, scratch my back away she went along even with the fence and doing a better job too than my hired man ever could do.

When she got about half way across the five, I heard a commotion out in the chicken-house and ran over there to see what was the matter. Of course I could have gone into the kitchen and the chart would have told me but I forgot it as I hadn't got used to having electricity wait on me that way. When I got back to the stump the tractor was out of sight and as I ran down the furrow I saw where it had gone through the rail fence, plowing an irrigating ditch for Hust Seebles down along his fence and that it was way down in the corner working on that old dead oak stump that's always bothered Hust when he plowed. Just as I got there it sort of leaped at the stump, knocking it out slick and clean. It quit then, figuring, I suppose that the job was done. Hust came running over, tickled pink to get the big stump out and the irrigating ditch all plowed. I charged him two dollars and he thought it dirt cheap.

There is so much more I want to tell you about these outdoor Electric operations, I guess I'll have to do it next time. My neighbors are all talking about my place and Caleb Winkle has already had the fellow install one button. Some of the neighbors have already nicknamed him "ONE BUTTON CALEB". Anyway I'll see you again next month.

P. S. I almost forgot the SLOW-GUN the electric fellow told me about. He said, "IF BIGGER AND BETTER KILLOWHATTS ARE EVER BUILT, THE ELECTRIC COMPANY WILL BUILD THEM".

Goodwill Building + + +

["With public sentiment nothing can fail; without it nothing can succeed; consequently he who moulds public sentiment goes deeper than he who enacts statutes or pronounces decisions."—Lincoln.]

"Strike Up the Band" For Goodwill Building

21 "Music hath charms . . ." Every utility should search out the musical talent among its employees and organize a band. The band should be provided with attractive uniforms, with the initials or name of the utility placed on coat collars and on caps. The proper marking of the drums is, of course, a conspicuous advertisement.

These bands should be encouraged to participate in community functions of all sorts—parades, picnics, charity affairs, parent-teacher programs, etc., etc. During a local fair, the local utility band should do its share in entertaining visitors. During a state fair or an international exposition, where the utilities would no doubt have an "Electric Utility Day," the bands of all the utilities in that state should be called upon to take part in the programs.

Where band music is not objectionable, arrangements could be made to have the bands entertain shut-ins in hospitals, including homes for the aged, homes and hospitals for crippled children, Veterans' hospitals, etc.

Other utility talent could go into the organizing of glee clubs, comedian acts, etc., and all these employees could be used to entertain at public gatherings.

During the summer months, possibly the utility bands might arrange to give programs on Sundays and holidays at the beaches and at the smaller district parks.

People love to be amused and entertained; so let the utilities "Strike up the Band" for goodwill.—*C. A. G.*

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Take Stigma Off Monthly Bills

22 A bill asks for something (payment); then why not enclose something in the form of giving. Some of the department stores enclose folders or booklets with their monthly bills, advertising the latest or advanced styles in merchandise handled by them.

Now the utilities could enclose with their monthly bill a brand new recipe for something to be cooked on the electric range; or a recipe for a frozen dessert utilizing the electric refrigerator. They could suggest menus for dinners, bridge luncheons, birthday parties, after-theatre snacks; utilizing range, refrigerator, mixer, etc. Games for all kinds of parties (children and adult) could be suggested. Illustrated (preferably colored) folders could show the latest in stream-lined toasters, waffle irons, etc. If the recipes can be illustrated in color, so much the better.

It is possible that some of these brightly colored advertisements or other enclosures will be passed on to the children to play with, but even in this case the youngsters will look forward to the pictures to be received with the bills.

If the bill is paid to a door collector, let him be supplied with the monthly literature to hand to the housewife (or maid) with the change.

In any event, give something with the bill.—*C. A. G.*

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Create Understanding And Make Friends

23 Like its customers the electrical utility is confronted with the ubiquitous tax bogey. Common interests promote fellowship and mutual understanding. The industry is endeavoring to establish such an understanding with its customers in the matter of utility taxes. These taxes are the problem of the consumer anyhow, inasmuch as the utility is the servant of the public.

Much has been done to inform our public that of each dollar they spend

for electricity only about 85c represents the actual cost of the service, the remainder going to taxes. Much more needs to be done to make this story register.

Repetition deepens impressions. The monthly bill for service affords an excellent opportunity for a subtle repetition. It can be done by separating the total charge into two components, one covering the cost of electric service only—say 85 per cent of total—and the other covering that amount of the bill—15 per cent—which will be paid out for taxes.

Thus, where, for instance, 70 kw.-hr. is billed out at 5c per kw.-hr.

Jan. 1 to Feb. 1

70 kw.-hr., electric service only	$2.98
taxes*	.52
Total 70 kw.-hr. @ 5c per kw.-hr.	$3.50

*Estimated from most recent tax bills—correct within 2 per cent.

Incidental variations may be necessary to adapt this method to local conditions.

This will put over in a forceful and inoffensive way the tax story which the utilities are trying to tell the public. Precedent for such a method has been established in various ways during the recent years of mounting tax burdens, notably by service stations in posting the price of gasoline and also by the sales tax.—*F. S. L.*

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Study Customers' Needs Then Fill Them

24 Let each utility appoint a committee of two men, one an electrical engineer and one a mechanical engineer to study the needs of their customers. At this point there will be quite a din by the utility executives to the effect that they are already doing just this, in fact have been studying their customers' needs for years. What they really mean by studying their needs is making a survey to determine whether or not the customer has a range, water heater, washing machine or any other appliance that they have in stock. Should they find a man with a one slice toaster and a large family they will try to sell him a two slice toaster to take care of his large family, or should they find a man with a two slice toaster and a small family they will try to induce him to raise a large family so as to use both sides of his toaster. And they call this studying the customers' needs.

What I mean by studying the customers needs can best be illustrated by a few true instances that have come under my observation in the last few years. In Imperial Valley, each year they raise and ship hundreds of carloads of lettuce, which must be trimmed and sorted before shipping. This grading results in the accumulation of hundreds of tons of culls which must be disposed of in some way. Up until a few years ago these culls were all handled by man power. For the last four or five years these culls have been handled by machine run by electric motors. The point is this, if the utility serving this district had been studying their customers' needs they would have discovered this condition fifteen or twenty years ago and would have been enjoying this increased load for all these years instead of only for the last four or five. Another point is that the utility didn't discover this load at all but it was up to the packers to figure out means of disposing of these culls.

Another more recent example is that of a large cement company in one of our northwestern states faced recently with the problem of loading its products on ships during a longshoreman's strike. It hit upon the plan of using a blower or conveyor pipe run by electricity, thank you, and it works very satisfactorily and economically. The point is that it could have been working for a number of years as this company has been in business for some time, also that it wasn't a utility that discovered this load.

I could go on for hours quoting examples of this kind but I believe these will suffice to point out what is meant by studying the customers' needs. There are hundreds of cases today where motor power could replace the variable and temperamental man power and do a more efficient and economical job. There are just as many customers waiting ready and willing to accept these motors to do their work if the utility will only point out to them the advantages of using this type of power.

There is where my committee comes in. They would not only point out that a motor would do the job more efficiently and economically, but would, with blueprints or a working model if necessary, prove to the customer just how this motor or motors could be applied to his particular plant. Mechanically as well as electrically they could intelligently discuss this customer's needs, deciding just what type and size of pulleys, belts, conveyors, chains, furnaces, blowers or what not were needed to handle his particular product. This service would be gratis or at least that is what the customer would think until he received his first power bill, but then balancing his power bill against what it would cost him to do this by man power he would find that he was far ahead. And the utility, balancing this committee's salaries against their increased load would find that they were far ahead.

With this type of consulting committee in vogue the customer would feel free to bring his problems to the utility, while as it is about the only thing he feels free to bring is the money to pay the power bill. And should some customer get bold enough to bring a problem to the utility today, he would probably be told that they would furnish him the electricity or even sell him the motors but just how he applied them was his problem. But is it? I wonder.—*J. D.*

Rules

TO intensify interest in the problem of building customer goodwill ELECTRICAL WEST will pay $2.50 for each idea or suggestion deemed worthy of publication. In addition all suggestions received during the period from November 1, 1935 to October 1, 1936, will be eligible for $50 in awards to be given by ELECTRICAL WEST, the P.C.E.A. and the Northwest Electric Light & Power Assn. These awards will be based upon the goodwill building merit of the idea, its practicability, adaptability and originality. The judges will be officers of the two associations and the editors. The awards will be $25, $15 and $10 for the three suggestions ranked first, second and third by the judges. In the case of ties duplicate awards will be made.

Suggestions should be limited to 400 words, preferably less. Composition does not matter as manuscripts will be edited for publication by the editors. Ideas will be published over a nom de plume, provided the author indicates that such is his or her wish. They should be sent to the editor.

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Educate Women on Advantages of Electricity

25 The clubs, especially the women's clubs, are a good place in which to do a bit of good will building. It is sometimes appalling to talk with certain club members and to learn their anti-ideas as far as the local power company is concerned. The utilities should have members in all important clubs and associations; these members to be specially trained to discuss the affairs of their company in a manner not antagonistic to the anti's.

Most clubs give both day and evening lectures regularly for their members. Sometimes these lectures deal with community problems. It would be a good idea occasionally to have such a lecture on the subject of electricity and to take particular pains to bring out the good that has been accomplished in the community by the local

power company. Few anti's take into consideration the size of the power company's payroll and what it means to the merchants in their town. They do not seem to realize that to stifle the spending power of the utilities is to cut off spending in the local stores. It may be that the very persons who hold the largest grievance (mostly imaginary) against the power company, have a member of their family interested in one of the community stores where the power company employees spend a large part of their paychecks. Every business gets some part of the power company's payroll in the form of such spending. Increasing the number of employees on that payroll means increased business for all.

The women's clubs could be encouraged to hold an annual Electrical Week, at which time all labor- and time-saving devices could be displayed (and perhaps demonstrated) in the club auditorium. Attention of club members and their friends should be directed to the fact that the more time a woman can save in her home, the more time she will have for club work.—*C. A. G.*

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Highway Lighting To Build Goodwill

26 To what extent shall the utilities spend to create goodwill? Capital, earning dividends is not to be considered a poor investment. The following suggestion is one which would necessitate some expense on the part of the power and light companies, but it is also one capable of earning large dividends in the form of increased goodwill and kw.-hr. consumption.

Nothing could be more appreciated in the community than a well lighted highway employing the new sodium vapor type lamps. The efficiency of these new luminares merits their extensive application to this purpose. It would be well to choose some well traveled highway leading into one of our metropolitan centers and to employ the sodium vapor lamps exclusively and to their fullest advantage. Let us convert this raw product of ours which is so plentiful into one of the finest of products the electrical industry is able to produce—that of illumination, and to so inform the people who travel this highway by means of well lighted signs or banners stretched across the right of way at both entrances with words appropriate, "A tribute to the people of southern California", or "California's natural resources offer an abundance of electricity at your command."

Such an investment should prove beneficial to all. The people realize as never before the need for better lighted highways to aid in reducing road hazards. This is obvious from the increase in automobile accidents and particularly to the majority which occur during the dark hours. The electrical industry, both the manufacturers and the power and light companies can well appreciate the extensive use their products can be put to when the public becomes unanimous in their demand for these better lighted highways.

We should be the first to set up this new standard for the people and to proclaim its merits by practical application. An appreciative public cannot help but voice their praises on something so necessary and beneficial, and manifesting an approval which could bespeak only in terms of goodwill. Our Western highways are the finest to be found in the country. It is paramount that we keep them so.—*R. C. B.*

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Service Must Accompany Each Kilowatt-Hour

27 Much has been written about "Service". "How much free service can the utilities afford to give?", has been a much discussed subject for some time. The term, "Service", means to the average utility man a hurried, or leisurely, trip in response to some frenzied consumers call for help. The making of service calls is too often thought of as being a necessary evil. And so they are. The necessity is keenly felt by the consumer, much less keenly felt by many utility men. The evil of the things is, surprisingly, wholly on the power company's side. It is expensive to make special service trips, and every time a service call is not promptly and efficiently answered, goodwill and prospects for future business suffer.

In order to minimize the necessity for many service calls, we suggest that a maintainance policy be adopted. To illustrate what we mean, two or three examples will be cited.

Usually the farmer or rancher is not entirely familiar with electricity or the unhappy results which are apt to result when his electrical equipment is not maintained properly. In many cases the gas company provides, by agreement, free maintainance service once a year (charging only for parts) for gas pumping engines. They accomplish three things by this policy. They gain and keep a customer, goodwill is built up, and the electric company receives a figurative 'sock in the eye'. Can the electric company afford to do less than the gas company? Friendly periodic inspections and the making of desirable minor repairs would go a long way toward minimizing expensive trouble calls, and building up goodwill generally. There have been cases of fires causing considerable financial loss to the consumer, as well as revenue loss to the company, which would not have occurred had some simple repair been made. Intelligent inspection would have revealed the need.

Consider the lady who has been having trouble with her electric range, sometimes it works and occasionally not. Then one Sunday she cannot cook the dinner. A frantic call to the power company rewards her with the doubtful consolation that: "A man will be up as soon as we can reach him. It's Sunday, you know, and the only man on duty is out on another call, several miles away." The longer the consumer must wait to cook her dinner, the greater is her resentment toward the utility. Unjust, perhaps, but human nature. The episode could have been easily avoided by a previous friendly inspection and a minor repair to a defective switch in the range.

When are the electric power companies going to fully realize the fact that they must dispense real 'Service' as well as kilowatt-hours?—*F. V. G.*

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Circuit Breakers

[Every once in a while someone says something in a few words that tells a complete and effective moral. There is nothing more that can be said. From time to time as we hear these they will be run under this heading. If you hear of any you think we should have, drop us a line.]

Pondering over the subject of demand charges, that Voltaire of the electrical contractors, George Black, of San Bernardino, sat down to his typewriter, inserted his bill statement form, and wrote out the following bill to one of his old customers:

George L. Black
Electrical Contractor and Engineer
455 Fourth St. San Bernardino

Sold to Mrs. H. E. Steele,
739 Second St.
San Bernardino, Calif.

Readiness to serve charge $00.01

Note:

When a customer fails to make a purchase within a reasonable length of time it is necessary to make a readiness-to-serve charge. I maintain an organization ready to serve your electrical needs on demand and when you fail to use the service provided for you it causes my banker great mental anguish. The principle of "readiness to serve" charge has been upheld by the Supreme Court and the California Railroad Commission, and I am sure that you will agree that it is a just and fair charge. Please remit.

(*Signed*) GEORGE L. BLACK.

Electrifying Executive Mansions

ELECTRA, who is gifted with a woman's intuition and also is willing to speak her piece when she has made up her mind, remarked the other night, "I think a family in Kansas will be moving to Washington about the first of January." I said, "From what I hear it is mighty hard to get a house there and all the hotels and apartments are crowded. She responded, "The property I have in mind is going to be vacated."

When that had soaked in I asked, "Well, what has that to do with the electric business?" and Electra said, "For one thing, Mrs. Landon will enjoy that big electric range that was installed not long ago—and also, the house is air-conditioned. Judging from the pictures I've seen of the Topeka house I doubt if they had either of these modern services."

That set me to thinking. I wonder how many executive mansions scattered through the forty-eight states have electric ranges? Surely our governors deserve that much and some of them are even worthy of air-conditioning. Maybe our commercial managers have been overlooking a bet. Our statesmen ride in fairly decent automobiles, they have steel cabinets and noiseless typewriters and the Los Angeles branch office of California's head man has rather a famous bathroom. As a matter of proper balance, it seems to me that our enlightened citizenry should provide a better line of electrical conveniences and comforts.

In his physical qualities, a governor is no different from other humans. What he does, in large measure, depends on how he feels. If he has had an uncomfortable night in a stuffy room, has made a breakfast of soggy pancakes and acrid coffee, and then takes up his duties in the sticky atmosphere of poorly lighted and inadequately ventilated office, is it any wonder that he signs the wrong bills, reprieves the wrong prisoners and says "Yes" to the wrong men?

Before we protest too much about incompetence in public office maybe we should give the officials a break. Then, if they continue to make goofy decisions after they have been surrounded with these modern comforts, we should give someone else a chance. (By November we will be able to determine whether those in power can come to logical and wise conclusions, even with the advantages of electric cooking and air conditioning.)

The next step would be to do something about our courts. Have you ever served on a jury in August? Would you be willing to have some dispute of serious consequence to yourself submitted to a dozen of your so-called peers who would be locked up in a room with a temperature of 102 deg. and 80 per cent humidity? Can't you imagine some obese juror, after ten hours of bickering, rising to remark, as he caresses his brow with an overworked handkerchief, "Let's call him guilty and get out of this sweatbox."

Then there is the matter of lighting, for example; have all of our government offices, shops, garages, yes—and institutions of restraint—been visited by the sight meter? Has anyone ever really tried to sell electric service to government or have we merely waited for invitations to bid? As advocates of economy in government, Electra and I would not suggest anything too elaborate along these lines, but at least the stuff that is bought might as well be right. Much of it that we have seen is in the gosh awful class.

Come to think about it, here is where government ownership might have some justification. Wouldn't it be a swell idea if government would go in for the possession of first-class electrical equipment. We might even make a start on highway lighting. Bonneville is a case in point—if the millions being spent for this superfluous project had been appropriated for a highway lighting system, mile upon mile of major roadway might have been made safe for night travel and the existing power plants would have a market for some of their surplus. The millions that have been dumped into T.V.A. not only would have paid for all the dams necessary for proper flood control in that section but there would have been enough left over to air-condition the postoffices at all strategic points. This would have brought the administration just as many votes, would have brought comfort to those few on the federal payrolls who still are under civil service and, again, would have furnished an outlet for surplus energy from existing plants.

All of these ideas assume that there will be no change in our current philosophy about government activities and the employment of the taxpayer's money. Any time that there is a surge of public sentiment of sufficient vigor to bring about real tax reduction, I will withdraw these proposals. When bills along these lines were introduced I would wire my representative, "SORRY STOP YOU HAD YOUR CHANCE STOP NOW YOU WILL HAVE TO SWEAT STOP THAT IS WHAT I HAVE BEEN DOING ALL THESE YEARS."

The American convention is a great institution, bringing together as it does men of common interests yet of varied experience. For two or three days they live together, work together, play together, and then go home with renewed enthusiasms for their chosen occupation and a variety of new schemes which they are eager to test in their own shops or offices. It costs money to send a man to a convention but it also costs money if he is allowed to go to seed in your plant. It is true that, in the past, some conventions went a little further in the development of good fellowship than was really necessary but, by and large, even gatherings of this type had their good spots. The post-depression model seems to have a better sense of balance, providing for true socialibility without detracting from the solid purpose of the meeting.

There still is room for improvement in convention programs. Many of them are too long, too verbose and too dull. If the time of the average delegate is worth $500 a month and it has cost an average $75 to send him to the convention and there are 300 of him in the audience, then a speaker who talks for half an hour is using $1,250 worth of time. He should make a $1,250 speech or read a $1,250 paper. Program committees might have this in mind when issuing invitations.

Both Electra and I are glad to note that the P.C.E.A. will have a regular convention next year, following four conventions-in-print. The latter have been informative and stimulating but it will be good to mix with the gang again.

With the Trade Associations + + +

[An Exchange of Plans and Ideas for Assisting the Industry in All Branches to Solve Some of Its Problems of Trade Relations and Business Ethics]

Fear of Penalty + Hope of Reward + Pride

By HARRY BIDDLE*

Attorney and President, Biddle Trade Bureau, Los Angeles

IN passing the rear end of a small shop the other day, I noticed the janitor sweeping out a little dirt into the alley. He swept it up into a pile about 18 inches long and about 10 inches wide and about 8 inches high.

I was reminded of a definition of dirt that I once heard: *"Dirt is misplaced matter."*

My imagination started to work and I thought that if I had a box that was 18 inches long, 10 inches wide and 8 inches high, without a bottom, that I could set this box down over this pile of dirt. Further, my imagination began to analyze the contents of that pile. It probably contained some cotton, some wool, some rubber, iron, steel, copper, aluminum, silver, platinum, glass, wood and many other materials. Then I thought that it was not beyond the range of possibility that the quality and quantity of the materials in this pile of dirt would fill the specifications for a radio. If it were possible to reach my hands into that box and change the relationship of these materials, change their relationship without adding to or taking from the pile, I would have a radio—a thing of great value by which I might hear the New York Symphony Orchestra play thousands of miles away.

As it is it is only a pile of dirt which has to be carted to the dump and is of no value. Reorganized so that the various materials were properly coordinated, they might equal a useful, valuable radio. The only difference between that pile of dirt and the radio is *organization.*

Organization is the fundamental invention and discovery of civilization. Civilization *means* organization. Organization is synonymous with progress. Intelligence manifests itself in organization.

Let me illustrate. Picture the prehistoric man with a rock or club in his hand, out searching for a victim for his breakfast. Picture this hunter creeping up on another man, only to find that this second man is creeping up on a lion for his meal. A fundamental invention or discovery happens. A gleam of understanding passes between these men. Both join their efforts and as a result both enjoy an abundant and satisfying meal and both live.

No one knows how long ago this happened but we do know that this was the first Trade Association. Further, this first *agreement in restraint of trade* involved nearly all of the factors and problems that exist in present day trade associations.

First, there had to be some *confidence.* Bear in mind that there was no past experience or precedent to encourage this indispensable element of confidence. Second, there had to be some *honesty.* Again, this element probably had never existed before. Doubtless, both elements resulted from a fear of injury and hope of reward, mixed let us say, with a new born intelligence.

I am not maintaining that this first trade association continued beyond the time that the tummies of either of the men remained free from wrinkles. It could not have lasted very long without a commissioner or trade bureau keeping it on the track. One thing seems to me probable and that is that the club in the hand of one man and the rock in the hand of the other were factors to be reckoned with, even as today.

Back in those prehistoric days, thousands of years ago, men were not honest by nature. I wonder if men of this present day are honest by nature? Let us test this question out a little. Do we still need policemen to make us drive within the motor vehicle laws? Do clerks and handlers of money need cash registers to make them honest? I am inclined to think so. In fact, I believe that cash registers have made more men honest than any other modern system or device. Fear of penalty and hope of reward still play their part as they did before history began.

Another factor has developed to a place of importance—*pride.*

Pride sells Rolls Royce automobiles. Pride sells silk dresses and stockings. Pride sells more than a thousand million dollars worth of cosmetics each year in this country. Pride is the factor that welds confidence and honesty through fear of penalty and hope of reward into *a convention.*

There is very little argument on the question that convention is the supreme law of the land. Convention works wonders. Convention makes us all wear neck-ties, buy straw hats at certain times of the year. Convention, in the last ten years, has raised the height of skirts to above the knee and is now bringing the skirt down until it sweeps the street as it did years ago. Any of these things would have been next to impossible of accomplishment by law or by law enforcement, yet convention does it.

When the fear of penalty and the hope of reward is so strong, so terrible, so awful, a convention can be created.

We dress the judge of the court up with a robe, put him on a platform, hang the United States flag back of him, and we have respect for him. We dress the policeman in a uniform and hang a gun from his belt and we have respect for him. No city has enough policemen to enforce its laws were it not conventional on the part of the majority of the people to respect the laws and the policemen.

The organization of a trade association and its operation is no different than the organization of any group for any purpose where greed, selfishness and pride of people is concerned.

Now let me go into a legal phase of trade associations. There are two reasons why the State of California is the best state in the Union for the operation of trade associations.

The first reason is that all of its trade centers are quite removed from the state lines. Therefore, interstate commerce is seldom involved. Industries in California are chiefly interested in the stabilizing of business within the state of California.

The second reason is that the laws of the State of California are particularly liberal for the formation and operation of trade associations. All governmental

* An address to the San Francisco Electrical Development League.

agencies—town, city, county, state or Federal agencies—exist for the benefit and for the protection of the freedom and right of contract, which means that if you enter into a lawful agreement or contract, all of the governmental machinery is at your service, to help you to enforce the contract.

In that State, it is lawful to form associations and enter into agreements in restraint of trade for the purpose of making a reasonable profit or to market those products which cannot otherwise be so marketed, or for the purpose of transportation, marketing, or delivery of such commodities. I am quoting from the amended Cartwright Law which has been the law of this State since 1909 and has been upheld in our California Supreme Court as constitutional.

Since the Supreme Court decision on the Schechter case and the A.A.A. test case and the more recent decision on the Guffey Coal Company that every business man knows the limits of the jurisdiction of the Federal Government, and that the Sherman-Clayton Act and the Federal Trade Commission have no jurisdiction whatsoever to control or even inquire into business that is intrastate in its character. This point of law is more firmly established today by reason of these recent United States Supreme Court decisions than ever before.

One more point should be cleared up, and it is this: that a business house doing interstate commerce, that is, commerce crossing the state line, still must look to the state laws relative to its intrastate business. Let us make this point clear—that if a business house does 99 per cent of its business in interstate commerce, this does not give the Federal government or congress any greater right, or in fact any right at all, to look into its interstate business, done within the state of California.

Next, we have a law in California which permits what are known as liquidated damages. In other words, a trade association in an industry can agree within the laws of that state to establish fair trade laws and rules of conduct stabilizing an industry, even to the extent of agreed-upon prices, showing a reasonable profit, and set up in such an agreement that a violation of its constitution, by-laws and rules will subject the violator to the payment of liquidated damages. These liquidated damages are collectable under the law of that state.

Now, again, California passed in 1927 what is known as the New Jersey Arbitration Law. Under this law, the association can name some person to act as its arbitrator or judge over controversies relative to association violations and rules. He can adjudicate all of these differences and controversies through arbitration without resorting to the courts.

To quickly sum things up, an industry should be organized, establishing fair, decent rules of trade and fair schedules which will show the industry a reasonable profit. Persons and firms should go into the association as they go into any other important business transaction. The association should be conducted in a methodical, systematic manner, engage a competent secretary or commissioner, and clothe him with the authority to police and enforce the voluntary agreements made by the association. It should keep out of all trade wars, and conduct itself so as to gain the respect not only of those in the industry, but of all those dealing with that industry.

Industry Support Voiced on Boat Convention

RENEWAL of a happy custom, after some years without it, came as one of the more informal returns from the boat ride convention of the Southern California Chapter, National Electrical Contractors Assn. But aside from this pleasant aspect of the trip, a genuine convention program was carried through as the Steamship Emma Alexander sailed from Wilmington to San Diego, May 22. After the ship had docked in San Diego the crowd spent the day visiting the San Diego Exposition, and returned to Los Angeles the following morning.

At the Friday evening convention meeting Glen Arbogast, president of the Southern California Chapter presided, and first introduced A. L. Stone, president of the Los Angeles Branch of the Chapter, who outlined the purpose of the N.E.C.A. and reiterated the highlights of President Earl N. Peak's recent message.

F. L. Hockensmith presented the No. 1 Firm Membership Plaque of the Southern California Electrical Development League to A. L. Stone in recognition of his services as secretary-treasurer of the League and in further recognition of the fact that he has not missed a single one of the 36 meetings of the executive committee which have been held since the League was organized.

Frank Watkins, director of purchases for the Southern California Edison Co., outlined the efforts which were being put forth to set up a working plan to put Earl Peak's program into effect. He commented upon the fact that the utility's policy has been one of constant lowering of electric rates in order to spread the use of electricity to an ever-widening field, and suggested that the contractors should give consideration to the adoption of wiring methods which would lower the cost of wiring, thus enabling more people to put in more wiring, with the ultimate result of a greater volume of business for the contractors. He extended unqualified assurance of the utilities' support of the contractors who are prepared to abide by the N.E.C.A. pledge.

Clem Purviance spoke for the Ben Franklin Club, stating that the policy of all members of that Club is to maintain normal channels of distribution—from the manufacturer to the distributor, to the contractor-dealer and to the consumer—in the hope that each would make a profit in the transaction.

Ross Hartley spoke for the range committee of the Electrical Development League. He related the details of a plan to sell the industry to itself by means of a series of range demonstration meetings, designed to sell electric ranges to employes engaged in all branches of the industry. The Southern California Chapter N.E.C.A. commended the range committee of the League, and endorsed the program as outlined by Ross Hartley.

John Duncan, Westinghouse Supply Co., representing the distributors, assured the group of the wholesaler's support of the cooperative program, and read a letter from Fred Todt.

Henry Rice, of the Southern California Edison Co., and Joe Rose of the Bureau of Power and Light, pledged the full support of the utilities.

The meeting then went into executive session for the election of officers for the ensuing year. The following officers were elected: president, J. O. Case, Quality Electric Co., Ltd., Los Angeles; vice-president, L. W. Wetzel, Kuster Wetzel Co., Long Beach; secretary-treasurer, Fred Ulbrick, Ul-Hart Electric Co., Los Angeles; and in addition to the above officers, to the executive committee: G. E. Arbogast, Newbery Electric Corp., Los Angeles; C. W. Jones, Valley Electric Co., Pomona; H. L. Evans, Nicholas Electric Co., Los Angeles; and

J. E. Chandler, Chandler Electric Co., Los Angeles.

With a new list of officers and executive committee, a new program is under consideration and will soon be presented to members throughout southern California.

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Hunter New President Vancouver Association

A. W. Hunter, Northern Telephone and Signal Co., is the new president of the Vancouver Electrical Assn. Election took place at the annual meeting, held recently, and Mr. Hunter, together with the newly elected members of his executive committee, were installed at the annual dinner, held a few days later. The installation ceremony was presided over by H. J. Sawyer, retiring president. T. C. Simmons is vice-president and S. F. Ricketts secretary. Mr. Sawyer still holds an office on the new executive committee, however, being elected to the position of treasurer. The members of the executive committee consist of R. Hall, C. B. Wallace, R. G. Wallace, G. W. Firth, J. S. Homersham, R. Niven, and R. A. Graham.

One of the feature speakers of the fourth annual dinner of the association was E. H. Adams, vice-president of the B. C. Electric Railway Company, who dwelt on the general improvement of conditions in the electrical industry in Canada, and especially in Vancouver.

F. Bartholomew, prominent Vancouver electrical engineer, in proposing the toast to "our central station," suggested that uniformity and standardization of rate schedules throughout the Dominion was essential to real success in the electrical industry.

R. Graham proposed the toast to "our jobbers and manufacturers" and paid particular attention to the Canadian Westinghouse Co., which was celebrating its 50th anniversary this year. Other speakers during the evening were D. C. Clarke of the Northern Electric Co.; T. Martin, Vancouver city electrician; Walter Leek, president of the Building Construction Association; and E. H. S. Wynn of the B. C. Workmen's Compensation Board. A delegation was present from the Victoria Electrical Association, and representing the electrical trade in New Westminster.

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P.C.E.A. Taken to Northern Members

Again to bring the Pacific Coast Electrical Assn. to members throughout Northern California, a series of meetings were held at each of the Divisions of the Pacific Gas and Electric Co. following the recent conclave at Fresno. In this way members of the Association throughout northern California had an opportunity to participate in discussion of some of the prize winning problem paper answers and discuss association affairs. In almost all instances other members of the industry, particularly contractors, dealers and wholesalers of the region, were invited to participate also, to hear the prize winning papers and participate in the discussions afterwards.

The first of the meetings was held at Salinas for the Coast-Valleys territory, another at San Jose and then a series of meetings in the Sacramento Valley and Eureka ending with meetings at San Rafael, Santa Rosa and San Francisco. Frank J. Kiefer, Northern California Mgr., Pacific Coast Electrical Assn., made the arrangements in cooperation with the local committee chairman. Earl Crellin from headquarters of Pacific Gas and Electric Co., attended practically all of the meetings, outlining the purposes and benefits to be derived from membership in the Association. In several instances moving pictures furnished by manufacturers or other features of interest added to the program.

In a number of such meetings there was expressed the desire for more frequent meetings of the members of the P.C.E.A. in such informal discussion groups.

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Fred B. Lewis Elected To PCEA Presidency

Fred B. Lewis, vice-president and general manager of the Southern California Edison Co., was elected president of the Pacific Coast Electrical Assn. for the year 1936-37 at the annual meeting held in San Francisco, May 28. Mr. Lewis succeeds F. O. Dolson, vice-president and general manager of the Southern Sierras Power Co., who is leaving for an extended vacation trip in northern Europe.

"The year 1936 marks the beginning of another great forward surge by the electrical industry," Mr. Lewis said in a brief address of acceptance. "This is being tremendously stimulated by nation-wide advertising in which the constant publicity about electricity from governmental agencies is no small factor. More than ever before our customers, present and prospective, are learning the benefits of electric service and its constantly increasing number of applications.

"Production records of electricity on the Pacific Coast for 1936 will exceed all former marks. The outlook for sales surpasses all estimates of a year ago. California will this year afford a market for 150,000 electric refrigerators, 90,000 washers, 20,000 ironers, 180,000 radios, 20,000 ranges and 10,000 water heaters. The industrial load is growing rapidly due to the renewal of activity in our factories and the arrival of many eastern manufacturers who are establishing plants in California to supply Western markets.

"With the return of public utility properties to local tax rolls, the public has had an opportunity to learn more of the facts concerning the part played by our industry in the support of government. As a result of the Riley-Stewart plan $900,000,000 in assessed valuation is now being taxed for city, county and school district purposes. With few exceptions the local utility is the largest taxpayer in any community."

Newly elected vice-presidents are W. R. Marshall, vice-president, Westinghouse Electric & Manufacturing Co., and D. E. Harris, vice-president, General Electric Supply Corp. N. R. Sutherland, Pacific Gas and Electric Co., was re-elected treasurer.

Directors elected for a two-year term include in addition to the above officers A. L. Stone, president, Los Angeles Chapter, National Electrical Contractors Assn.; P. M. Downing, vice-president and general manager, Pacific Gas and Electric Co.; C. B. Russell, president, Associated Wholesale Electric Co.; W. W. Glosser, vice-president, Hubbard & Co.; H. L. Harper, Pacific District manager, Graybar Electric Co.; L. M. Klauber, vice-president and general superintendent, San Diego Consolidated Gas & Electric Co.; E. Martin, Sterling Electric Co.; A. E. Wishon, president, San Joaquin Light & Power Corp. and G. C. Tenney, editor, *Electrical West*.

Plans for the association for the coming year will be in accordance with the report of the planning committee announced at the recent Fresno conclave of the association. Initial committee appointments announced by President Lewis include the following: Operating Economics Section, A. W. Copley, Westinghouse Electric & Manufacturing Co., chairman, and R. H. Halpenny, Southern Sierras Power Co., vice-chairman; Business Development Section, A. H. Nicoll, San Francisco manager, Graybar Electric Co., chairman, and H. C. Rice, Southern California Edison Co., vice-chairman; Administrative Services Section, R. E. Fisher, vice-president in charge of public relations and sales, Pacific Gas and Electric Co., chairman, and A. C. Carpenter, San Joaquin Light and Power Corp., vice-chairman. This last section is a newly organized division and will include such subjects as taxes, customers' services, public relations, accounting, and purchasing and stores.

EDITORIAL + + +

Albert Graves Wishon, 1858-1936

HE was a pioneer. To us of the West no title such as prince or earl, no regally bestowed honor with its medals and ribbons, no alphabetical symbols of academic learning can evoke more reverence, more veneration, more respect than this simple phrase. They are almost a vanished race but their vision, their courage, their audacity and persistence have left behind indelible marks upon the land, the people and the industries of this West of ours.

Albert Graves Wishon was one of these, the last of a revered group whose names conjure visions of the infancy of this electrical industry that affords to all of us a livelihood. He was one of those rare builders who stood upon a hill above an arid desert and saw, mirage like, a green and fruitful empire. And his was the courage and fortitude to bring this dream to accomplishment. Because of his works, a whole valley, greater in area than the average state, is a region of prosperous diversified agricultural abundance and rich communities rather than a semi-arid waste.

It was in 1889 that, heedful of the wisdom of Greeley, he came to Tulare county in California. Through his interest in real estate and land development he saw the crying need of this rich land for water. He visualized the utilization of the mountain streams of the Sierra Nevada for this purpose. But falling water would produce power as well. So in 1894 he organized his first power venture. It failed because his backers withdrew financial support, characterizing him as an "impractical visionary" when he proposed to build transmission lines longer than the 25 miles originally contemplated. Here it was that the persistency and vision which marked his entire career stood him in good stead. A $2,000 real estate commission provided funds to send the brother of John Hayes Hammond to England, where now financial backing was obtained and the Mt. Whitney Power Corp., one of the predecessors of the Southern California Edison Company, launched.

And then came the fulfillment of a dream that has shaped the agricultural destiny of California. His power lines crossed fertile but arid lands. Why not put water on them by pumping electrically? He was undaunted by the laughter and ridicule evoked by this proposal. San Francisco bankers loaned him money to purchase equipment and in 1899, so far as is known, on a farm near Lindsay an electric motor attached to a pump for the first time poured a life-giving stream of water into irrigation ditches. Today more than 2,000,000 acres of electrically irrigated California land produce abundantly and A. G. Wishon, more than any other man provided the inspiration back of this achievement.

Ever appreciative of the power resources of the falling water of the Sierra Nevada streams, he rode and tramped the mountains at every opportunity, mentally marking a possible power site here, a reservoir there. Few men knew the mountain streams better than he, and when opportunity came to take over the bankrupt San Joaquin Electric Company in 1903, he turned this knowledge to advantage. From a system of one small plant and a scattering of customers, he built an electric utility with hydro plants on many streams, serving electricity to 90,000 homes, farms, stores, factories and oil fields scattered over 35,000 square miles.

Few people know that a flaming gas well was the inspiration for another of his engineering conceptions. Intrigued because it burned so long, he inquired and learned that hundreds of wells in the oil fields were capped because they were "gassers." "Pipe this gas to a market and you will be utilizing a natural resource beneficially and rendering a public service," he thought. His idea interested southern California capitalists and the first gas line from the San Joaquin Valley oil fields to Los Angeles was built. Today this gas is piped hundreds of miles both north and south to serve millions of people.

Yes, A. G. Wishon was a pioneer, a man of vision and courage—dreamer, builder, constructor. Yet there was in him none of the hardness that frequently goes with the ability to accomplish great works. He was a humanitarian in the broadest sense and an inspirational leader as well, as is attested by the

name to which he was known to all his people—simply "A. G." His Missouri birthright stamped him with the gentleness, gentlemanliness and graciousness of the old South. All men to him were friends. While he leaves behind such enduring monuments as dams and power houses, a great utility and an abundantly productive empire, he will live forever in the memories of a great legion of people as a friend and leader.

Call Out the Rear Guard

"THE sales battle of the electrical industry will be fought on the front doorstep of the American home!" Many will recall the enthusiasm that this ringing challenge evoked just a few years ago when it was issued by one of the industry's outstanding sales managers. Judged on results the sales battle has been a profitable one. Millions of refrigerators, thousands of electric ranges, countless small appliances, washers, ironers, I.E.S. lamps—all these and more have brought comfort, health and happiness to millions of homes through the industry's sales efforts.

But how about the back door? Has it been left unguarded? Facts recently developed in one section of the West seem to indicate that while a successful frontal sales attack has been underway, competition has taken advantage of the lack of a rear guard and has moved in, replacing electrical appliances and load simultaneously. In this particular district, a year ago electric refrigerator dealers were complaining bitterly of the competition of their brethren selling gas refrigerators. This year there are no such complaints despite a 50 per cent increase in electric refrigerator sales and a 100 per cent increase in the sales of gas boxes. Investigation by the power company merchandise department showed the strategy of the gas appliance salesmen. They were not working so intensively on *new* refrigerator prospects; they were concentrating their sales efforts on those customers whose electric refrigerators were six, eight or ten years old. They were securing the bulk of the replacement business. And they had a strong cohort in the person of the ice man, who also saw the possibilities of this fruitful market.

These facts bring into sharp focus two problems which the industry faces. One is the necessity for a strong rear guard to retain load and the other is the increasingly important subject of refrigerator replacements. Both are going to require intensive cooperation from manufacturers, distributors, dealers and the power companies. The utilities must retain the load; the others need the sales volume to maintain profitable operations.

Solution may rest in a technique similar to that developed in the automotive field. Perhaps a market can be developed for reconditioned refrigerators like that for second hand automobiles. This might open up a new market stratum not now economically able to afford electric refrigeration. Certainly the industry must recognize this problem and act quickly before this business is lost.

Electríthis and Electríthat

ELECTRI-Los ANGELES Bureau of Power and Electrilight has started a new game that promises to beat that new sign language crazidiocy, "handies," hands down. The "Los Angeles Electrical News," published by the Electribureau has just supplied the germ for the creation of what American Language expert H. L. Mencken would certainly term a new Electrilanguage. In the June issue appeared such new electricoinages as Electridealer, Electrileague, electriranges, electrishop, electrikitchens and electrihomes. This thing can go on forever, and with "California's Electriage Just Beginning," promulgated by the Southern California Electrileague, no doubt will do so.

Sprinkle a few electriwords in your own conversations!

Margins vs Taxes

MARGINS to the contractor, the dealer, the wholesaler are more often established arbitrarily than through any intelligent analysis of the costs of doing business. Once established they seem to have the rigidity of a college tradition. There is something sacred about them that defies further investigation or revision. Therefore, when governments, who pay so little heed to what business needs in order to be prosperous and employ people naturally, impose new taxes of various and fancy varieties, something happens to that margin between cost and selling price. And that something never seems to be an increase in margin—rather it is likely to be another slice taken from it.

Tradition or no tradition, many of those whose place in our economic picture is to render certain distribution services to the next in the chain, feel that margins, or discounts, should be looked at realistically from the standpoint of actual conditions and costs. The arbitrary scale of discounts which may have been more than ample when business was simpler and less costly, may not be nearly enough to pay off Uncle Sam and the state, county, and city and still leave enough to support the business.

Obviously, since little or nothing can stem the tide of public spending of other people's money which must be collected sometime, some day, in the form of plain and fancy taxes, perhaps under a program of better industry understanding and cooperation something might be tried in the way of adjustments to the discount margins.

Significant Trends + + +

[Signposts which point the road to improved business or method, brief, pertinent, useful hints as to HOW someone has blazed a new trail]

Too Many "Special Permissions" in Code

TAKING issue with the proposed rearrangement of the 1935 National Electrical Code, W. G. Tretheway, city electrician, Huntington Park, Calif., precipitated one of the best discussions on inspectors' problems ever to come before the Southern California Chapter, International Assn. of Electrical Inspectors. At the regular meeting May 27 at Long Beach City Hall, presided over by Chairman Otis Newcomb, Mr. Tretheway maintained that the revision and the arrangement of the new wording allowed too many "special permission" opportunities to void the code. At least 21 rules in the code, he claimed, could be voided by taking advantage of the special permission phraseology.

In one instance, referring to Articles 2522 and 2544 of the proposed arrangement of the code, he illustrated by samples of 30-amp. service entrance switches, one connected to electric metallic tubing, the other supplied with short lengths of rigid conduit. With this he pointed out inconsistency in requirements for the bonding of the service run.

This paper, illustrated by samples, has been suggested as a topic for the convention of the Southwestern Section, I.A.E.I., in Fresno in September. Code article committees were urged to give the matter special study.

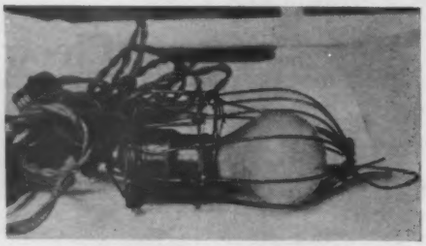
A letter from Secretary H. R. Gerber, of the Southwestern Section, requesting official sanction from executive committee members to establish a northern California chapter brought congratulations from the Southern California Chapter and a recommendation that newly appointed International President Ralph Wiley officially open the first meeting of the new chapter at the Fresno convention Sept. 21-23.

L. O. Wetzel, contractor, Long Beach, and member of the board of examiners of that city, spoke on the relationship between contractors and inspection departments. He urged group meetings when new codes are adopted or new rules brought in so that the industry may become acquainted with the changed requirements. He likewise asked inspectors to provide a means of supplying various contractors with uniform information regarding requirements for each particular job.

Herbert Ufer, secretary of the Southern California Chapter, suggested an auxiliary of the Southern California Chapter for Imperial Valley. Victor Hartley, Frank Short and J. De Voe volunteered to go to the first meeting to get such an auxiliary organized.

The permanent exhibit made up by Frank McMahon and described in these columns last month received the congratulations of all assembled. Frank Airey had added two panels showing wiring supplies and fittings prepared by Wiremold Co. Chairman Newcomb arranged to have the exhibit shown at the Building Materials and Household Exhibit in Long Beach municipal auditorium. A booth was obtained adjacent to one occupied by Southern California Edison Co. Over 15,000 people attended the exhibit, which attracted so much attention that it was voted one of the best in the auditorium.

After a visit to Shell Oil Co.'s electrical installation at Dominguez plant, through courtesy of Herbert Carrier, general superintendent, the next meeting was set for Nov. 18 at Redlands, Calif., after the September convention of the Southwestern Section.



Light That Killed

Deadly was the lamp found in the hands of Hirosh Yama, Japanese janitor, whose body was found inside a furnace in a San Francisco apartment house which he had entered to repair. The lamp was a common green drop cord affair with brass shell socket equipped with a metal bushing and metal lamp guard. The hot side of the cord was wired to the middle contact of the plug to energize the shell side of the lamp rather than the tip. One of the metal wires of the lamp guard came in contact with the brass shell of the Mazda lamp. With the lamp screwed in to its full distance the screw shell protruded about ⅛ in. beyond the metal socket, allowing room for this unusual contact. With the lamp in his hand and his body in contact with the metal of the furnace, the Japanese received the 110-volt current through his body and was found dead an hour and a half after the accident occurred. Inspectors point to the accident as one likely to occur where work cords are not properly safeguarded or maintained

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...in Wiring Rules

• ATTENTION has been called to an amendment in the contractors' license law of California by Glen V. Slater, assistant registrar, that prohibits any two firms which are individually licensed to engage in contracting from submitting a joint bid without taking out a new license for the joint firm. Every combination or association of persons, without regard to whether or not they are individually licensed, must secure a license covering combination or joint ventures before submitting bids or undertaking contracts, according to the bulletin.

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• LABELS indicating inspection by the Underwriters' Laboratories are available to three additional products, it was announced to manufacturers, purchasing agents, contractors and other interested parties. The products are transformers and cables for oil burner and gas tube sign use, and elbows and bends of electric metallic tubing.

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Radial Wiring System Explained in Manual

To give more complete engineering explanation and detail of its radial wiring system, the General Electric Co. has just issued a "Reference Manual for Architects and Engineers." It is a 32-page bulletin containing complete information on the basic design of the wiring system, as well as procedure and specifications.

While it was about it the General Electric Co. also included sections illustrating the materials and fixtures used, wiring diagrams, and a convenient check list serving as a reminder of the different elements that should be considered for various residential requirements. In fact, it is quite a complete catalog and manual on wiring materials of all types manufactured by the company, completely illustrated and accompanied by time-saving material selection tables. The latter list the type of construction, the general structural conditions and locations, the type of raceways, conductors or special cables. While designed for architects and engineers, the booklet is a handy one for contractors and estimators as well.

Gateway to the rancho, the big door of which, now shown up, is actuated electrically. The pipe, at left, contains the key switch by which the owner, arriving by car, may open the gate from his car. On leaving, the gate may be closed by depressing the lever concealed in the shrub at the right. The "Doorman" speaker for communication with the house is seen just beside the door at the gate. In the background is seen the guest house itself

Desert Home Uses Full Air Conditioning

WHEN Edward C. Thompson purchased a square block in Palm Springs upon which to build himself an ideal winter home, he decided first to experiment with a cottage which would later become the guest house of what he terms "Rancho de la Golondrina."

Hence his guest house, an attractive concrete brick bungalow of the Indian style, was fitted with complete air conditioning and a number of other exceptional electrical features. In a little lean-to at the back of the house he placed a 2-hp. Frigidaire water cooled condenser unit which provides the mechanical refrigeration for the cooling of the house in the hot weather. A duct system of cellotex feeds the conditioned air to the various rooms of the house. The rooms themselves are insulated with two inches of cellotex on walls and ceilings. A ⅜ hp. blower fan is mounted in the duct system to keep the air in circulation.

For heating, since desert nights are cold in the winter time when the snow is on Mt. San Jacinto, 5,000 watts of Thermador heating units have been installed in the ducts. These are automatically turned on by Thermador thermostatic control which also actuates the air conditioning or cooling system when the temperature rises above a predetermined point.

In the dining room the air outlet is in the ceiling as shown in an accompanying illustration. In the bedroom a special louvre near the ceiling brings in the air and the exhaust grill is located near the floor line. To match the grill through which the air comes in Mr. Thompson has had installed a concealed light which throws a soft illumination into the room when desired.

Mr. Thompson has learned a number of interesting things about the installation during his year of its use and when he builds the large home he contemplates, he plans to have it completely air conditioned also.

What provides Mr. Thompson with the greatest amusement and pleasure, however, is his unique and complete system of signaling to the gate. A high concrete brick wall surrounds the Rancho. At the main entrance is installed an automatic electric gate which lifts by means of a quarter horsepower motor and gear train. To open it a key is inserted in a lock provided, either on the inside or just outside. The outside lock is mounted in a piece of pipe which protrudes from the ground and can be reached by the driver of an automobile at his left as he approaches the gate.

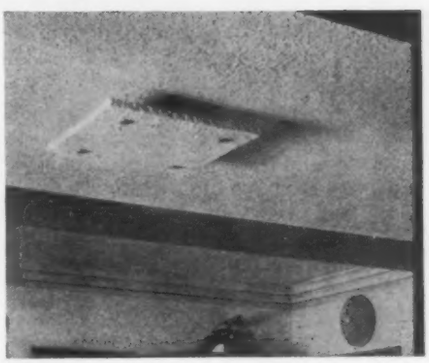
A Doorman announcing system has been installed between the house and the gate. This system consists of a loud speaker and microphone, both at the house and at the gate, by which a two-way conversation can be carried on. Mr. Thompson says he finds it very effective in keeping away peddlers and agents as well. This system can also be used as a servant call throughout the house and grounds.

The electric installation at the Thompson home was made by the V. C. Knupp, Desert Electric Company, electrical contractors of Palm Springs. John Mangel, air conditioning engineer

Air, either heated or cooled, is introduced into the living room through the ceiling. The duct opening is covered by this panel

Mechanism for opening the gate is housed in an attractive gate house. The motor and mechanism is shown near the rafters. On the pillar may be seen one of the Yale lock key switches by which the gate mechanism can be operated

In the bedroom the air is admitted from the grill at the ceiling, which has next to it a built-in panel light. The air exhaust is shown at lower left. A thermostat controlling system, which cannot be seen in the picture, is mounted on the wall nearby



for the Southern Sierras Power Co., consulted with Mr. Thompson and arranged for installation of air conditioning, according to Francis F. Crocker, local agent for the company.

Mr. Thompson says that no matter when he comes to his desert home, winter or in the hottest period of summer, he enjoys perfect comfort in the house.

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Wiring Handbook Timed to Upturn of Building

Predicting another building cycle in its beginnings, the industry committee preparing a handbook on interior wiring design hopes to get its handbook completed by the fall so that it may be placed in the hands of architects, contractors and the industry generally at a psychological time. The building cycle, computed from records of building in 120 American cities, shows that building goes on a 20-year cycle. There is every indication that building reached its low ebb in 1934 and is now definitely on the up turn for another long cycle.

Distribution of the book will be given to architects, engineers and the public in conjunction with a coordinated selling program to popularize the standards set forth in the handbook and to create public demand for electrical installations built in accordance with the specifications outlined.

The handbook is being prepared by a joint committee representing all branches of the electrical industry headed by E. A. Brand as chairman.

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Hints on Wiring Given Architects

One room at a time, lighting and electrical layout plans are suggested to the architect readers of Los Angeles Electrical News, published monthly by the Los Angeles Bureau of Power and Light, prepared by T. H. Shephard, illumination engineer for the Bureau. A drawing with outlets marked and a descriptive article telling of the need for each outlet and convenience are shown in the little magazine. The message is having its effect on new building in Los Angeles.

Recently the Electrical News was changed over from a strictly range publication sent to electrical dealers and salesmen into a more general publication now circulated to architects as well. Stressing the electric kitchen and the electrification of home and office buildings, the publication also pays a graceful compliment to architects who are electrically minded and in this way also enlists their support.

Red Seal Wiring Being Sold To Home Builders ...in Construction

ADEQUATE wiring can be sold to the home builder. This has been proved by the experience of the Southern California Edison Co., which has nine men on its sales staff who cooperate with contractors, engineers, architects and dealers in selling wiring adequacy to the new home builder. Known as "Electric Home Planning Specialists" these men approach the prospect for a new home as a wiring advisor, "who, having called on hundreds of new homes, can perhaps help with new ideas."

According to Henry C. Rice, merchandise manager, under whose supervision the men work, this sales activity produces tangible business in the way of new load as well as intangible benefits in the form of increased customer satisfaction and improved trade relations. Result of this sales activity is that the Edison company had on its lines at the beginning of 1936 2,700 all electric homes. In 1935, this sales activity produced 373 new homes which qualified for the Red Seal certificate, specifications for which in California are considerably in excess of the requirements in other regions. In the first quarter of 1936, 167 Red Seal certificates had been issued to new homes on the Edison lines and more than 100 Red Seal jobs were pending. It is estimated that each home planning specialist makes in the neighborhood of 500 contacts per year and that every wiring job is improved whether the finished home meets Red Seal specifications or not.

Prospects are secured from the advertising given to the home owners service which the company maintains, from contacts with home owners who have benefited from the service in the past and from tips turned in by employees. In addition close contact is maintained with architects who specialize in residential planning as well as with electrical contractors. Electrical contractors have learned from past experience that the work of these home planning specialists definitely increases the electrical end of every job and as a result they frequently seek the help of the salesmen when a new home prospect develops.

Architects have learned that the men are particularly well qualified to lay out a complete electrical job including heating and air conditioning and as a result frequently call on the salesmen to write the electrical specifications for new homes. In one new subdivision, where 22 homes were being constructed, 13 were all-electric and several included air conditioning in addition to electric heating.

Each salesman is equipped with a complete portfolio of the visualizer type which contains photographs and plans for homes to accommodate every strata, from those costing $4,000 to $5,000 up to homes costing in excess of $100,000. In addition these portfolios contain complete electrical operating costs for typical homes taken directly from the Edison company's books, showing typical bills for every month in the year.

Special effort is directed toward selling electric heating as well as cooking and water heating. Average records show that the electric home which does not include electric heat returns an annual revenue of $105 to the company, whereas the addition of electric heat results in an increase of $75 per home in the average in annual revenue. In addition it is estimated that each kilowatt of electric heating placed in a home results in $20 to $25 to the electrical contractor in wiring and equipment.

Electric heating is not sold on a price competition basis with other types of fuel but is sold by emphasizing the comfort and convenience it provides as well as the fact that it is the most modern type of heating. Where electric heating is contemplated, the emphasis is placed on the desirability of proper insulation of the home because experience shows that good insulation will cut the operating cost of the electric heating equipment 45 per cent.

With the definite increase in residential building which has developed in recent months the nine men have not been able to accommodate all of the new prospects which have applied for electric home planning service. Because of the dividends which this sales effort produces both for the company and the industry, plans are being developed to devote more man power to this work of selling wiring adequacy.

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• RILEY ELECTRIC SHOP at Barstow, Calif., has moved across the street to 119 E. Main St.

First the Redman lures the eye, then leads on to the appliance display

Redman Attraction Doubles Sales

Twice the sales and twice the floor traffic produced by any previous sales activity are reported by Charles Brown & Sons department store, San Francisco, as the result of their annual bazaar, which this year employed the Hotpoint Redman as number one attention getter.

Though the Redman was what the crowds saw first, he was but half the show. Starting a block from the store, the Redman carrying an electrical appliance, would head toward the main entrance. There he would pause while a "barker" urged the crowd which had attached itself to the Redman to "come in and see."

The Redman would then lead the crowd inside to the Hotpoint demonstrations, and to other displays. Grabbing up a different appliance he would go outside and repeat the process, with the results already stated. Store Manager Jack Noodleman collaborated with J. J. Burns of the G.E. appliance and merchandise department in working out the attraction, believed to be its first use by a department store in the West.

...in Merchandising

Portland Store Has Brightest Lighting

Outstanding lighting installation, that of the Paul Feldenheimer Jewelry Co., is justification for the boast of Portlanders that their city has the best lighted retail shop in the West. Throughout the shop are foot-candle intensities twice as great as those considered to be "high", and moreover, they are achieved without glare.

In the display windows, the light intensity is 700 foot-candles. Foot-candle intensities at other parts of the store are: average general, 93.3; show cases, 100; diamond room, 160; under marquee, 170.

To provide the general interior illumination, twelve Holophane lens boxes were mounted flush in the ceiling. From three lenses in each box, concentrated beams from 150-watt clear lamps are focused on the show cases. Supplementing these are three, 150-watt, totally indirect fixtures.

Fourteen recessed wall cases are lighted each with three, 60-watt General Electric Lumiline lamps. The high window intensity is achieved with seventeen, X-ray zone type reflectors, employing 150-watt lamps at 12-in. centers.

Reflector installations were handled by Ralph Turner, Pacific Coast illuminating engineer for the Curtiss Co., and Ray Camnitz, of the same firm in Portland. Electrical work was by NePage McKenny Co.

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Flexible Lighting a Sales Idea

The three-light lamp has been largely overlooked by contractors as a means of building commercial lighting sales, according to Y. C. Bressie of the Bressie Electric Co., Portland, Ore. For the lighting of stores, markets and the like, in conjunction with a three-way switch, it has obvious advantages. The 200-watt lamps ordinarily installed in the ceiling fixtures represent an inflexible installation. In order to secure sufficient illumination for certain periods of the day and for dark days, they must be increased in size to the point of overwattage under ordinary conditions, or the proprietor must put up with them and thus maintain insufficient light much of the time.

By using the 200-300-500-watt three-light lamp, this condition is overcome. With individual three-way switches, the proprietor not only obtains a flexible system of illumination in general but has control of it in all parts of the store. Dark spots in the store can be touched up and lighter portions held down at will.

From the utility standpoint, this should constitute a load-building idea of merit for the reason that the 200-watt lamp has apparently been the favorite in such installations. By putting in the 200 to 500-watt lamp it has been found that the store owner soon sees the advantage of the higher intensities and educates himself into using the higher intensities more and more. Bressie has used this idea in selling a number of new and revamped installations, securing wiring work and increasing his sales of lamps and fixtures at the same time.

Typical three-light lamp installation made by Bressie Electric at Spath's Market, Portland

News of Note + + +

Albert Graves Wishon Dies in Fresno

"The grand old man of the power business," Albert Graves Wishon, died June 17, at his home in Fresno, following a long illness. He was 78.

Thus death ended the career of the man who was once termed an "impractical visionary," the man whose "impractical vision" converted the San Joaquin Valley from near desert to agricultural abundance and guided the pioneering growth of the San Joaquin Light & Power Corp. from a single 2,000-hp. powerhouse to a 173,325-kva. system.

And the industry mourns the loss of the man whose perseverance, courage, integrity and kindliness carried his name even farther than his many achievements.

At the time of his death, Mr. Wishon was vice-chairman of the San Joaquin corporation's board of directors, having relinquished the presidency to his son, A. Emory Wishon, upon the merger with the Pacific Gas & Electric Co. in 1930.

A native of Missouri, Mr. Wishon was born at Coppeges Mill in 1858. For a time he attended the Missouri School of Mines and in 1889 went to California, settling in Tulare.

It was while working there as a realtor that Mr. Wishon began to see the great possibilities in the territory if only it could be watered. Finally, in 1895, he secured backing for his Kaweah Power & Water Co. But the project failed to reach completion because its backers lacked confidence and withdrew support.

But Mr. Wishon was undaunted. Four years later, in June, 1899, his Mt. Whitney Power Co. backed by London capital, began furnishing the first power for irrigation pumping in the San Joaquin Valley, marking an epoch in Western power use.

But farmers were reluctant to spend money for electrical equipment in order to spend more for power they'd never seen work. To meet this crisis, Mr. Wishon went to San Francisco, borrowed $25,000 and invested the entire amount in motors and pumps. By demonstration he sold the entire stock in two days at 20 per cent per year installments plus 6 per cent interest.

Mr. Wishon remained as general manager of this company until 1902, when he interested A. C. Balch and W. G. Kerchoff, who had pioneered hydroelectric development in Southern California, in the purchase of the San Joaquin Electric Co., then in receivership. With purchase effected, Mr. Wishon became general manager.

Right, A. G. Wishon, and left, the late A. F. Hockenbeamer at the dedication of the Tiger Creek power plant

Under his guidance this system expanded into ten California counties, with fifteen generating plants of 173,325-kva. carrying its service to 187 cities and towns. One of his greatest dreams, the harnessing of Kings River flood waters, reached actuality in 1927, when the 37,500-hp. Balch powerhouse, first unit in the Kings River system, began generation.

In 1920 Mr. Wishon was made a vice-president and managing director of the San Joaquin company, and became president in 1925. He is survived, besides his son, by his daughter, Mrs. Ralph Watson of Fresno, a brother, three sisters, and five grandchildren. His wife was the late Henrietta Emory Wishon.

His hundreds of friends recall the aptness of the tribute which was paid him in 1929, when 1300 employees of the company held a surprise reception in his honor:

"A man's ultimate achievement is not altogether measured by the accumulation of world's goods he gathers on the way to independence, but rather by the friends he gathers, the number of people he helps, and by the esteem in which he is held along that road to success."

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• THE SENATE on June 5 confirmed the appointment of Claude L. Draper, former state engineer of Wyoming, to succeed himself as member of the Federal Power Commission. His term will expire June 16, 1942.

Bonneville Bill Fails to Reach Floor of Congress

Bonneville legislation is dead for a year. To persistence of the administration in attaching a clause which would have established a basis for rate making of every federal power project is attributed failure of the legislation, which otherwise was predicted to pass both houses of congress by unanimous consent.

Objection to the bill introduced by Senators McNary, Bone, Schellenbach and Steiwer arose over a provision investing control over rates in the federal power commission, and extending the commission's authority not alone to Bonneville, but also to TVA and Boulder Dam, thus establishing a new federal policy.

Importance of passage lay in the impending generation of power at the Bonneville plant, for which there is no agency for operation and rate making. President Roosevelt stressed the importance of the legislation to Senator Robinson, but wanted passage to include the provision for extended authority.

The rush of Congress in closing hours plus failure to modify the provision creating a national power policy resulted in the bill's lying dead at adjournment, despite appeal by Senator McNary for removal of the objectionable section. Among those protesting the bill were the Portland Chamber of Commerce and the Oregon State Grange.

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Los Angeles Makes Ready for Boulder Power

Big projects now underway by the Los Angeles Bureau of Power and Light in connection with preparations for receiving Boulder Dam power were reported as:

Laying of two 33,000-volt cables between distributing stations at 3006 Trinity St. and 3520 S. Normandie Ave., to cost $200,000.

Miscellaneous additions and replacements to the underground and overhead voltage systems, to cost $141,000.

Installation of a transformer bank to provide greater capacity at the receiving station, 1630 N. Main St., including appurtenant equipment, to cost $293,000.

Other items authorized by the Board of Water and Power Commissioners will bring total capital expenditure to $682,721, according to E. F. Scattergood, chief electrical engineer and general manager of the bureau.

RMEA Revives Two Investigation Bureaus

After seven years of comparative inactivity, the Rocky Mountain Electrical Assn. has revived its accounting and engineering divisions. Both are now focusing their attention upon operating, managerial and accounting problems confronting the industry in the area.

Under the direction of President K. W. Kissick, and the chairmen of the two units, consideration is being given to more than a score of subjects, with a view to presentation to the Association during its annual convention in Santa Fe, N. M., Sept. 21 to 23.

In the accounting group, at the head of which is S. A. Mendum, such subjects as the Social Security Act, discounts and penalties, carrying charges and other topics affected by new laws, rules and practices are receiving attention.

The engineering division is jointly administered by Chairman P. C. Schools and L. M. Robertson. It has already submitted an analysis of costs and design of substations. Contemplated topics include: distribution transformer connections; ground resistance and testing; substation, distribution system and fence grounds; service entrance cable and new sequence metering, and public and employee welfare.

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Domestic Rate Cut to One Cent in Vancouver

One cent electricity on all domestic meters, for consumption in excess of the first 230 to 260 kw.-hr. became effective in Vancouver, July 1. In announcing the voluntary reduction, W. G. Murrin, president of the British Columbia Electric Railway Co., said the rate was made to encourage increased use, particularly through new cooking and heating devices.

Previous service was at 4c per kw.-hr. for the first 30 to 60 kw.-hr. depending on the floor area of the house, and 2c per kw.-hr. for all excess. These rates remain, but creation of the third block at a 1c reduction limits the 2c rate to a block of 200 kw.-hr.

The reduction is in line with the company's policy of offering low rates for electric ranges and follows recent announcement of an 0.8c rate for domestic water heating.

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• MORTON, WASH., has retained Burwell Bantz, Chehalis engineer, to prepare an estimate of cost for a proposed lighting plant and distribution system. Application will be made to the Public Works Administration for $45,000 to cover cost of the proposed improvements.

The Standard News

July 1936 — Electrical Edition

Published by THE STANDARD ELECTRIC STOVE CO., Toledo, Ohio

Hidden Virtues

Some buyers are more careful than others, some more searching into hidden qualities. What you buy is not represented by its surface appearances. When you propose to buy something, whatever it may be, skin it mentally and see what is inside. If you do not conduct a search of this kind, you have just as good a chance of getting skinned as of getting your money's worth.

A good manufacturer buys his materials only after extensive search into its qualities. There is just as much chance of the manufacturer being skinned as for the ultimate buyer of the finished product. The manufacturer who takes a chance, really "takes a chance."

The consumer who takes a chance, without actually "looking inside," has an excellent chance of buying shoddy materials. Modern manufacture has a way of finishing materials so that they "look like a million dollars." It is hard for the layman to tell the difference between an all-wool sweater and one made of combination of wool and inferior materials.

Cut a cross-section of a Standard electric range, mentally or actually. See what is inside. "Knock down" a Standard and take it all apart. You will find that its "Thirty Qualities" (described in leaflet A256) are actually all there.

After over a quarter of a century of building electric ranges exclusively we have found that the only thing that actually counts in the long run is quality and service to the user. We don't want anyone to ever regret his purchase of a Standard. Not many have. C.A.P.

Many Sales Helps

Do you want a four-page letterhead showing Standard features and with your name and address? These are available for Standard Dealers. How about a sign to place on your counter or on a range? Light green and ivory porcelain finish. Yours for the asking.

We also have signs six by eighteen inches for your truck sides and end-gate. Free—ask for them. A set of window cards, four in number, to help trim your window—low cost. A complete window trim, six feet high by seven feet wide, substantial and at low cost. See Bulletin S-165 for complete list of all sales helps.

Every dealer and every salesman should read the Standard Manual. You need this book. It will help you sell ranges.

Have you read "The How and Why of Surface Burners"? Tells all about the marvelous Standard "KALMAX" and "SPEED-HEET" and "LO-LOW" burners. Gives the history of surface burners for the past 25 years.

Ready July 10th

This shows Model No. 1465CAB "Collingwood." A new Standard of beauty

and distinction. It has beauty in its lines, an attractive back rail, may have condiment and clock set in combination with the range light as shown, or just with the range light, or without either. Regular equipment consists of smokeless broiler pan, non-tilting oven rack, choice of burners; Cooker extra. Write for leaflet A256 which shows the four models of this series. Two with legs, two with CAB base. Deliveries will begin about July 10th.

No Substitute

There is no substitute for knowledge of the product you are selling. Knowledge is 75%, salesmanship is 25%. In our contact with Dealers selling Standards over the past 25 years we have found that invariably the man who knows his goods sells more than the one who does not.

If you come near Toledo, stop in and see us. Ask the Standard man about any point on which you are in doubt. Write us asking all the questions you can think of. In most cases we have printed answers but will spare no pains to give you your answers. Selling more Standards and creating more satisfied users is our mutual interest.

Standard sales are growing by leaps and bounds. You can get your share of this business.

Address

THE STANDARD ELECTRIC STOVE COMPANY

Dept. C, Toledo, Ohio, U. S. A.

Fine Record Wins Coffin Award for Idaho Power Co.

To the Idaho Power Co. last month went the annual award for 1935 of the Charles A. Coffin Foundation, established by the General Electric Co. in 1922, for distinguished contribution to the development of electric light and power for the convenience of the public and the benefit of the industry.

The award, comprising the Charles A. Coffin gold medal, a certificate, and a check for $1,000 to be deposited in the treasury of the company's employe welfare association, was received by K. M. Robinson, president and general manager, at the annual convention of the Edison Electric Institute in St. Louis.

A well-balanced and aggressive program of supplying electrical energy to a population of 190,000 in a widespread agricultural region formed the basis of the award.

Especially cited were the power company's rural electrification efforts. For many years it has built farm lines and surveyed rural territory to bring power to all unserved dwellings. It now has a total of 2,467 miles of rural lines, having added 734 miles during 1935.

It cooperated with the Federal Housing Administration in working out a simple financing plan to enable customers to obtain adequate electric wiring and needed equipment.

The judges were impressed with the company's safety record, particularly in the operation of its motor vehicles, which resulted in no personal injuries to either employes or public during the year.

Also winning commendation was the company's spirit of cooperation. Said the judges:

"The diversion of water for either power or irrigation is a frequent cause of friction between the conflicting users, but the Idaho Power Co. has for many years promoted and protected irrigation interests, releasing its own storage water in drought emergencies."

Licensing agreements, contracts and other negotiations have been made by the company with such agencies as the U. S. Bureau of Reclamation and the Federal Power Commission. The company has assisted the Northwest planning commission in studies of the Columbia River Basin.

The federal government has erected eight large dams in the territory and at four of these has hydroelectric generating stations, which are operated under the auspices of the power company. In 1935 the company engaged in a construction program totaling $1,500,000, including the erection of a hydroelectric generating station at Twin Falls*, the only station built by a private utility in the northwest during the year.

Another interesting phase of operation was that pertaining to customer credit and collections. The company adjusted its policies during the depression years, carrying many of its customers through the period rather than add to the community relief expense. Representatives of the management personally visited each district in the territory and obtained thereby a thorough understanding of the collection problem, reflected in the results for 1935, when billings exceeded those of 1934 by $290,000 and collections increased $335,000.

The company had a strong home service staff, and put forth every effort to cooperate with the Federal Housing Administration to promote residential building, making a house-to-house canvass of city residences in the interests of modernization, and erecting a model home for demonstration purposes at the Twin Falls hydroelectric station.

Judges for the award were Thomas N. McCarter, president of the Edison Electric Institute; Karl T. Compton, president of Massachusetts Institute of Technology; and Frank W. Smith, chairman of the institute's prize awards committee.

*ELECTRICAL WEST, April, 1936.

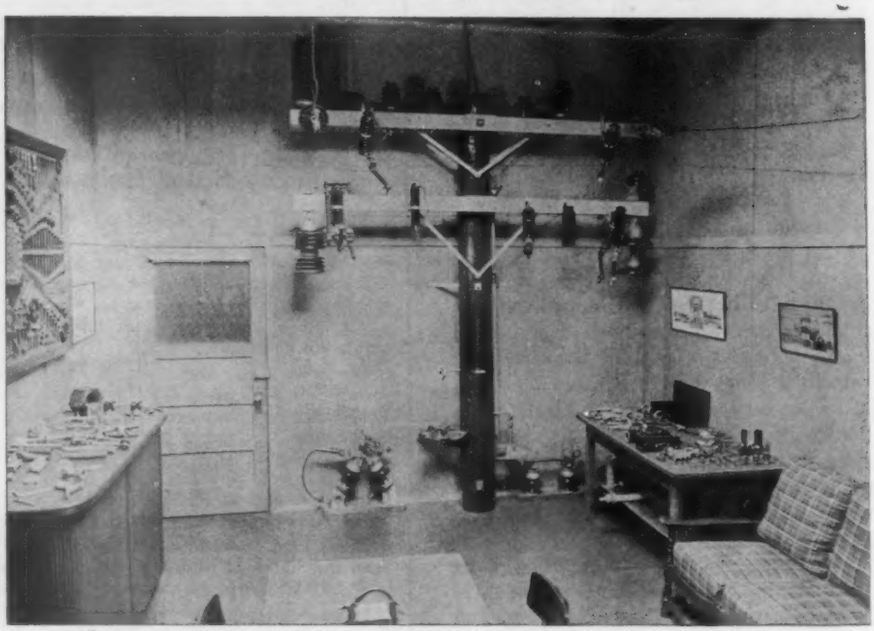
Residential Boom Adds Load in Vallejo

Residential load in the territory served by the Vallejo Electric Light & Power Co. is receiving impetus as the result of a distinct building boom occasioned by increased activity in the U. S. Navy Yard. A total of 285 new residences are under construction. Many of these are being equipped with both electric ranges and water heaters. During one 10-day campaign the company sold 26 ranges.

Tying in with the national kitchen modernizing campaign the company has constructed a model kitchen in a store adjacent to the city's leading theater and across the street from the present offices. Minnie Ritter has been placed in charge of the kitchen as home economist. As a result of this model kitchen five ranges and four water heaters were sold in one day shortly after its opening.

• CONVENTION DATE of the National Electrical Contractors Assn. has been advanced one week to Oct. 12, 13 and 14, meeting to be at the Atlanta Biltmore Hotel, Atlanta, Ga. The change will allow wholesalers and manufacturers to attend without conflict with other convention dates. These include: N.E.W.A., Buffalo, Sept. 27 to 30, and N.E.M.A., Cincinnati, Oct. 5 to 8.

Comfort Combined with Complete Display



Facilities for actual operation of switching equipment are among the features in this corner of the new display room of Maydwell & Hartzell, Inc., in San Francisco. In addition to exhibiting samples of all types of distribution and communication line materials handled by the firm, the room was furnished with a thought for the comfort of those making inspections

SAVED $.....

Figure the dollars this new switchgear will save YOU

THE G-E "MIDGET" METAL-CLAD. *Note how easily and safely the breaker can be lowered for inspection or removal. Ratings are 2500 volts and 5000 volts, 800 and 600 amperes, respectively, at 25,000 kva.*

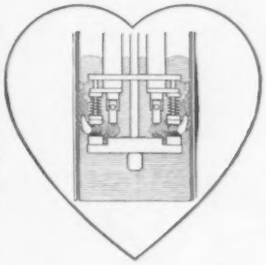
Try This Test

CHECK the five big advantages of the G-E "midget" metal-clad—compare this modern metal-clad unit with the equipment you may be thinking of purchasing for the same job. Then figure the dollars-and-cents saving which the convenience, safety, reliability, and low upkeep of the G-E midget metal-clad will make possible in your plant.

1. *Completeness*—A compact, self-contained unit which handles the entire switching job.
2. *Simplified Installation*—Comes to you completely assembled. Just place in position and connect the cables.
3. *Safety*—All live parts are completely enclosed—no enclosing grille work or other expensive safeguards are necessary.
4. *Low Upkeep*—High-quality construction throughout—including solid-silver main contacts in the circuit breaker—reduces upkeep costs to the minimum—assures long service at low cost.

Positive Protection for Production Machinery

5. The midget metal-clad is equipped with one of General Electric's highly preferred oil-blast circuit breakers, which clears short circuits swiftly and surely, prevents damage to production machinery, and assures continuity of production. The oil-blast chamber (shown at right) is an exclusive feature of G-E breakers. The country's largest power companies rely on oil-blast breakers for system protection. You, too, can depend on them. General Electric, Schenectady, N. Y.



The Heart of the Midget

880-2

GENERAL ELECTRIC

Progress Keynote of A. I. E. E. Summer Convention Program

FOR one week Southern California held center stage in the drama of electrical engineering as more than 700 delegates and guests of the American Institute of Electrical Engineers met in annual convention. Of the Institute's 61 sections, 55 were represented. Convening at the Huntington Hotel, Pasadena, June 21, the first national convention to be held on the Pacific Coast culminated in unanimous enthusiasm for the success of the Western sections in sponsoring a national meeting equal to the best yet held by the A.I.E.E.

Technical sessions were uniformly excellent. Forty-nine papers disclosed investigations into a wide range of subjects and contributed valuable data to many phases of the electrical engineering art. The entertainment features exploited the rich field of southern California recreational facilities to the utmost, and gave Eastern visitors an unusual opportunity to become acquainted with the Southwest. Adding interest were the many new engineering projects now in progress in the West. That pioneering in power generation and transmission is not dormant was best revealed by the numerous inspection trips to engineering works of the various utilities serving the area. Boulder Dam, the largest power development in the world, the new transmission line of the Los Angeles Bureau of Power and Light, utilizing 287 kv. for the first time as a commercial voltage, the Long Beach steam station of the Southern California Edison Co. Ltd., and the new plant of the General Cable Co., where the type HH cable is manufactured, all embodied features of unusual interest for engineers.

The convention was opened Monday morning, June 22, by President E. B. Meyer, of the Public Service Co. of New Jersey, and officially welcomed to Pasadena by C. W. Koiner, manager of the city, who is a member of the Institute, having been the first chairman of the Los Angeles Section, this year's host to the visitors. First order of business was the election of officers for the ensuing year. A. M. MacCutcheon, engineering vice-president, Reliance Electric and Engineering Co., Cleveland, Ohio, was elected president.

Awards of national prizes for 1936 Institute papers were made during the opening session. For the best contribution to engineering practice, the paper selected by the judges was that by E. F. Scattergood, general manager of the Los Angeles Bureau of Power and Light, entitled "Engineering Features of the Boulder Dam-Los Angeles Lines."

Dr. Vannevar Bush, vice-president of the Massachusetts Institute of Technology and dean of its engineering school, was awarded the eighth Lamme Medal, the Institute's recognition for meritorious achievement. Dr. Bush's contributions embrace methods and devices for the application of mathematical analysis to engineering problems.

Both tennis and golf were popular. H. S. Warren, Westinghouse Electric & Manufacturing Co., Los Angeles, won the Lee golf trophy; Carl E. Johnson, Sterling Electric Motors, Inc., Los Angeles, took the Mershon golf trophy and J. S. Henkle, Portland General Electric Co., Portland, Ore., won the Fisken Cup, annual golf prize of the Pacific Coast districts. E. F. Lopez, Mexico City, won the Mershon tennis trophy.

TECHNICAL SESSIONS

Continuing the precedent established last year, the engineering program consisted both of formal sessions and round-table conferences. The latter provide facilities for intimate discussions of specialized problems and the interest aroused by them indicates they will become a permanent adjunct to A.I.E.E. meetings. Formal sessions included the following subjects.

CONDUCTOR VIBRATION

Outstanding were papers by J. S. Carroll, Stanford University, and John Koontz, Pacific Gas and Electric Co., which described a new technique for studying conductor vibration. For the first time, full-sized conductors have been vibrated successfully by artificial wind in the laboratory, through modification of the conventional wind tunnel to produce more uniform flow. The tunnel in the Stanford laboratory will vibrate a 50-ft. span under closely controlled conditions. Paralleling this study was the method developed for measuring the energy necessary to vibrate a cable using an extremely accurate electro-mechanical system. It was found that but little energy is necessary to start vibration. By correlating the two methods, energy absorption curves for various conditions of vibration were made possible.

ELECTROPHYSICS

In his paper entitled "Fields Caused by Remote Thunderstorms" K. E. Gould, Bell Telephone Laboratories, Inc., described the methods used to check the theory that disturbances on long toll circuits were the results of distant lightning storms. The technique employed in effect utilized directional antennae stations located at widely separated points, indications from which were recorded on a cathode-ray oscillograph and formed the basis of locating storm centers by triangulation. W. G. Hoover, Stanford University, Calif., in his paper on "Fields and Charges About a Conductor" showed that there was a shift in phase of the space charges about a conductor due to ion migration at potentials above those at which corona forms. Important, also, was the work of A. C. Seletzky and K. F. Sibila, Case School of Applied Science, on developing an analytical and graphical method of calculating short circuit currents in Y and Delta three-phase circuits. The method simplifies the mathematics of symmetrical components and their application to commercial problems.

ELECTRICAL MACHINERY

The increasing use of hydrogen cooling for rotating machines was discussed by C. M. Laffoon, Westinghouse Electric & Manufacturing Co., who showed that the trend toward high pressure and high speed turbines is forcing a corresponding reduction in generator sizes with the attendant need for more efficient cooling such as is possible by the use of hydrogen. Because this cooling medium makes possible higher capacities and reduced losses and maintenance, it probably will gain increasing favor with operating engineers. G. W. Penney, also of the Westinghouse company, presented a very able paper on hydrogen cooling at near-critical velocities. Mr. Penney's studies were to determine data on the heat transfer coefficient from surfaces to hydrogen.

A. H. Lauder's paper on "Salient Pole Motors Out of Synchronism" marked a new step in the analysis of machine performance. This G.E. design engineer extended the development of the methods of tensor analysis to the subsynchronous performance of salient pole machines as a means of predetermining characteristics. The methods outlined are important to synchronous machine designing.

MEASUREMENTS AND SELECTED SUBJECTS

The presentation of Otto A. Knopp, Pacific Gas and Electric Co., on "Some Applications of Instrument Transformers" created considerable discussion. The author described specialized applications of instrument transformers which were developed over a period of years to meet specific field conditions for which no standard apparatus was available. Typical of these was an instrument transformer used on direct current lines.

The effects of electric shocks on animal tissues, particularly the heart, were described in two interesting papers. Conclusions indicated that more serious fillibrations of the heart tissues was apt to occur if shock were received during the pause between heartbeats. Frequency studies seem to indicate no appreciable difference in hazard between 25 and 60 cycles.

POWER TRANSMISSION AND DISTRIBUTION

This session was presided over by N. B. Hinson, chief engineer of the Southern California Edison Co. Ltd. R. L. Webb and O. W. Manz, Jr., Brooklyn Edison Co., described a simplified method of impedance measurements on underground cable. A system study required determination of zero and positive phase sequences on the underground circuits. By using an a.c. potentiometer, readings of impedance and power factor were obtained directly from which the values desired could be readily calculated.

In his paper entitled "Tests on Oil Impregnated Cable" H. H. Race, General Electric Co., described studies being carried on in anticipation of the demand for higher voltage underground cable. D. H. Rowland, Locke Insulator Co., discussed the mechanical failure of porcelain in relation to the effect of surface on strength, the apparent anomalous distribution of individual mechanical test values and the effect of time on mechanical strength. Conclusions were that surface strength is fundamental to proper performance, that uniformity of tests is not a safe criterion of good porcelain. Formula, such as those described on the paper, can be determined to make a quick evaluation of the probable characteristics of porcelain.

L. V. Bewley, General Electric Co., presented an interesting analysis of flashovers on transmission lines. Of practical value to transmission engineers is his demonstration that flashovers can be estimated and segregated into 1, 2 and 3-phase and double-circuit flashovers.

TRANSFORMER SYMPOSIUM

These papers were of dual interest. They embodied both a description of the latest designs for the 287-kv. Boulder Dam line and description of power transformer development during two decades, tracing increased efficiency and reliability through improved calculation, structural harmony, stress distribution, materials and manufacturing methods.

ILLUMINATION

Highway lighting was the principal subject of discussion. L. A. S. Wood, Westinghouse Co., N. Y., advocated better visibility on our highways at night as a means of saving life and property. Campaigns for safe driving, he said, require education of both driver and pedestrian and require actual highway lighting installations as educational examples. Headlights are ineffective and unscientific according to Mr. Wood. He advocates state financing using surplus funds from gasoline taxes.

C. A. B. Halvorson, General Electric Co., presented a very able engineering analysis of highway lighting principles including the problems of optics, light sources and system designs.

PROTECTIVE DEVICES

Circuit interrupting devices for the Boulder Canyon project formed the basis for three papers at this session. A fourth described new relays and apparatus for carrier current pilot relaying having a speed of operation of one cycle. This system approaches the limit as greater speeds of operation have little significance in improved system performance. Two others described a new distance ground relay of improved design which permits operations to be predicted mathematically and the analysis of field performance of distance relays. The final paper described the application of a neutralizing transformer as protection for communication circuits from localized increases in ground potentials due to power system faults. The theory, which has been substantiated by several successful installations, consists of inserting compensating voltages in an exposed circuit. The primary of the neutralizing transformer is connected between the power station ground and the communication cable sheath, the secondaries being connected in the communication lines in the proper direction to neutralize disturbing voltages.

Goodness that starts at the core

Photograph Courtesy Wagner Electric Corporation, St Louis, Mo

WHEN we tell you that American Electrical Steel Sheets are the finest you can buy, we base our claims on the demonstrated performance of the equipment in which they are used.

Electrical engineers and electrical manufacturers are saving money every day by using these superior Steel Sheets in generators, transformers, motors and switch equipment. Production is easier, faster and lower in cost, because American Electrical Sheets are unvaryingly uniform in quality. Each shipment is just as ordered . . . mechanical and electrical properties are as specified. Flatness, uniform temper, low core loss and permeability are insured by the close and constant attention we give to every detail of manufacturing.

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For a limited time only we are offering to the trade a special 15% discount on Capstan Pulley Blocks and Linemen's Socket Wrenches. Don't fail to take advantage of this unusual offer.

A·B·CHANCE CO· CENTRALIA MISSOURI

Utility Offers Plan for Cooperative Distribution

Volunteering a cooperative plan for the distribution of power in the Imperial Valley between the Southern Sierras Power Co. and the Imperial Irrigation District, F. O. Dolson, vice-president and general manager of the utility, presented a plan before Leon Whitsell, president of the California Railroad Commission, late in May.

In his testimony Mr. Dolson pointed out that although the company had hoped to distribute any power derived as byproduct of the All-American canal, when the District decided to distribute for itself a study of competitive conditions revealed that a heavy loss to District and power company and to consumers would result.

"It is obvious that if the District duplicates our facilities and we continue to fight for the business, there is going to be an unnecessary cost of between $700,000 and $800,000 per year. This must come out of the three groups mentioned above. If this condition confronted two business men they certainly would get together."

He proposed the establishment of a separate district zone embracing Imperial County; determination by agreement between the District and the company and the Commission of the value of property in this zone to be used as a rate base; determination by the same group of a fair rate of return; likewise of a proper price for power delivered; a proper price for power from the canal plants; a price for standby power; and an agreement for division of any earnings above the agreed rate of return.

Operation of such a plan would bring immediate reduction in rates throughout Imperial Valley, he pointed out. It would also mean greater rural electrification and, more important, immediate payments to the District for canal power which would practically cover the first five annual installments to the United States treasury on the All-American canal costs.

Formal proposals of the plan have been prepared and presented to the Imperial Irrigation District directors.

•

• DECENTRALIZATION of the Federal Power Commission with the establishment of five district offices was announced last month, a departure from previous concentration in Washington. Western headquarters will be at Denver and San Francisco. The branches will be administrative only, plans and policies being handled from Washington as before. Increased duties imposed by the Utility Holding Company Act of 1935 were given as reasons for the change.

Leadership

General Fremont, California Pioneer

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FIRST NATIONAL
BANK
OF SAN FRANCISCO

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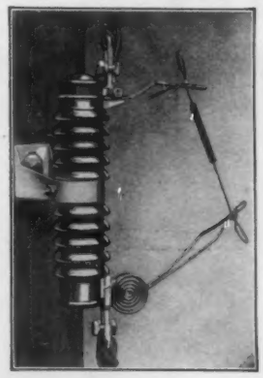

TRIP-O-LINK
CUTOUTS

For rural line construction

Light in weight
Sturdy in design
Reliable in service
Low in cost

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Electrical Engineers
and
Manufacturers' Representatives

Los Angeles ★ San Francisco

Pacific NEWA in Del Monte Meeting

Trade relations affecting the wholesaler, the manufacturer and the manufacturers' agent featured a two-day symposium conducted at the summer meeting of the Pacific Division of N.E.W.A. at Del Monte, Calif., June 10-13. Papers outlining various problems involved in wholesaler-manufacturer relations were presented by representatives of both groups. The Ben Franklin Club of Los Angeles sponsored the case of the manufacturer. R. A. Balzari, president of the McGraw-Hill Company of California presented a summary for both sides.

Constructive discussions featured the closed meetings held by the wholesalers. One of the facts brought out was that wholesaling costs in this region were 25 per cent higher than in other sections of the country, due principally to higher taxes.

In the regular golf tournament the highly prized Copper Cup was won by Charles Goodwin of the General Electric Supply Corp., while W. B. Sawyer, Jr., of the American Steel & Wire Co. won both the Manufacturer's and Oakes trophies. In a new team play event Charles Goodwin teamed with George Bryant of Economy Fuse & Manufacturing Co. to win from the field.

•

• TWO OF THE NEW STATE BUILDINGS at the Capital in Sacramento, built to house the Board of Public Works and Motor Vehicle Departments are expected to be ready late this year, will have several offices equipped with electric heat for use in evenings after the central heating plant is closed down. Office of the director of public works will be equipped with a 5-kw. electric water heater and 10-kw. in electric unit heaters. In the motor vehicle buildings two offices will be similarly equipped. Each of the buildings will have a load of 800 kw.

•

• SAFETY was the subject which recently assembled officials and employees of the Pacific Gas & Electric Co., at a meeting in the company's auditorium in San Francisco. Talks on safety were supplemented with displays of electrical equipment arranged by The Western Hardware & Tool Co., the E. D. Bullard Co., and the Davis Emergency Equipment Co., Ltd.

•

• AIR CONDITIONING is finding the best market in all of its history in Imperial Valley, according to word from Southern Sierras Power Co. A number of stores in El Centro have installed cooling equipment.

THE PERFECT SEAT

IN A DROP FORGED CAP

The above illustration shows the inside surface of the supporting lip of a BTC Drop Forged Steel Suspension Insulator Cap, ready to assemble on the porcelain.

Observe the smooth, die-formed surface—concentric within surprisingly narrow limits—free from projections, which concentrate stresses and shorten insulator life—from roughness, which hinders the free restoration of the assembled parts, to normal position, after repeated thermal and mechanical stresses.

THE BREWER-TITCHENER CORPORATION
Cortland, New York

Through Your Insulator Manufacturer Only

BTC

FOR RELIABILITY,
INSIST ON A DROP FORGING

...about People

Roy Kimberlin Is New Salt Lake Graybar Manager

Roy W. Kimberlin, for the past five years merchandise manager in the San Francisco district of the Graybar Electric Co., Inc., has been transferred to Salt Lake City as district manager according to an announcement by A. H. Nicoll, under whose jurisdiction the Salt Lake house operates. J. M. Perlowitz, Salt Lake district sales manager for the past 10 years comes to San Francisco as specialist in charge of railway and government sales.

Mr. Kimberlin's Graybar career involves a steady climb through various positions in the sales department. For several years he was salesman in the Sacramento region. He was transferred to San Francisco as office specialist in 1927 and in 1931 was made merchandising manager. He has been president of the Wholesale Refrigeration Assn. since its inception. Mr. Perlowitz has been with Graybar, mostly in the Rocky Mountain region for the past 20 years, during the last 10 of which he was district sales manager.

The position formerly held by Mr. Kimberlin will be divided between David Capelli. merchandising specialist in Oakland, who takes over district sales responsibility for major appliances and W. H. Derbyshire who will handle small appliances. O. W. Montgomery succeeds Mr. Capelli in Oakland.

●

Bird Becomes President Of Nebraska Utility

W. M. Bird has been appointed president of the Western Public Service Co. of Scotts Bluff, Neb. For the past four years he managed the Bellingham district of the Puget Sound Power & Light Co.

Mr. Bird's connection with Stone & Webster organizations began 26 years ago in the Jacksonville Electric Co., Florida. His career has taken him to Texas, Georgia, Kentucky, Nova Scotia, and most recently to Seattle and Bellingham in the Northwest.

●

• LEO G. GIANINI, illuminating engineer for the San Francisco division, Incandescent Lamp Department, General Electric Co., and founder of the school of illuminating engineering at Stanford University, sailed for Honolulu, May 29, to conduct a series of educational lectures and hold consulting and sales sessions with lamp dealers and contractors and the utilities of the Hawaiian islands.

• C. A. KELLEY, purchasing agent of the Southern Sierras Power Co., was recently elected president of the National Assn. of Purchasing Agents at its four-day convention in New Orleans. Mr. Kelley has served as vice-president of District No. 1, for the association, including all territory in the United States west of the Rockies. Mr. Kelley was also chairman of the Purchasing and Stores Section of the Pacific Coast Electrical Assn. several years ago. He has been with Southern Sierras since 1913, having been made general storekeeper in 1916 and purchasing agent in 1919.

●

• LESTER S. READY, consulting engineer of San Francisco and former chief engineer of the California State Railroad Commission, has been retained by the Sacramento Municipal Utility District as a consultant in connection with the $12,000,000 electric generating and distributing system voted by the district in 1934. H. G. Butler will be associated with Mr. Ready in this work.

●

• J. A. MAYER has been transferred by Graybar from Denver to the Cleveland-Toledo-Akron district of the organization. Replacing him is S. B. Hardin, for 20 years a member of the Graybar firm, most recently at Kansas City, Mo.

●

Gamester

When the Los Angeles Electric Club held its annual stag, Bill Mullendore was in charge of games. Mr. Mullendore is executive vice-president of the Southern California Edison Co., Ltd.

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TO GIVE
SERVICE
GEO. E. HONN COMPANY
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Fuses, Cutouts, Protective Devices
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LAPP
LINE POST INSULATORS
Lapp Line Post Insulators eliminate radio interference due to both dirt and electro-static conditions.
★
Write for Bulletin No. 123 describing and cataloguing these insulators.
LAPP INSULATOR CO., Inc.
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LOCUST PINS

Oak Brackets and Pole Steps

Safety • Strength • Lasting Economy

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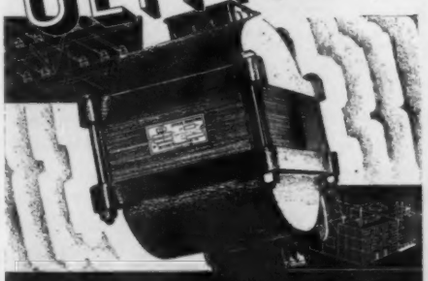
JEFFRIES



TRANSFORMERS

Save Their Cost and Pay Dividends by—

1. Elimination of duplicate conduit runs.
2. Saving in power rate.

(Put all of your 110-volt equipment on a 220-volt or 440-volt power circuit, it is economical.)

JEFFRIES TRANSFORMER COMPANY
5706 Long Beach Ave. Los Angeles

Bakewell Resigns League Post, Lewis Succeeds

Resignation of George Bakewell Jr., and appointment of George E. Lewis, as manager of the Electrical League of Colorado have been announced by President E. E. Brazier. Mr. Lewis, who retains managership of the Rocky

GEORGE E. LEWIS

Mountain Electrical Assn., has been closely associated with the league for more than 14 years.

Mr. Bakewell's resignation followed his appointment as sales representative for the General Electric Appliance Co. in the Rocky Mountain region. He first entered the services of the league as field representative in 1924, and became manager in 1926.

•

• H. C. KELSEY, formerly commercial manager of Grays Harbor Railway & Light Co., Aberdeen, has been appointed assistant to the general manager. Mr. Kelsey first joined the company in 1919, later leaving to take a course in electrical engineering at Oregon State College. Upon graduation he worked for Sanderson and Porter in the construction of the Electric Park station of the Grays Harbor Co. In 1925 he again joined the company as salesman, later became sales manager, then commercial manager.

•

• A. A. TUFFORD has been named sales representative for Allis-Chalmers Manufacturing Co., with headquarters in San Francisco. For the past fifteen years he has been with the Cutler-Hammer organization.

•

• GILBERT L. STANTON has taken over advertising and promotional managership for the Idaho Power Co. Well known in Caldwell business circles, Mr. Stanton was appointed following six years as managing editor of the Idaho Granger.

BRASS BUSHED
for greater strength

•

Hemingray Adds to its Long List of Advantages

1. Brass bushed smooth threads for insulator pin.
2. Greater mechanical strength.
3. Sustained high dielectric strength.
4. Unaffected by sudden temperature changes.
5. Withstand maximum insulator pin expansion.
6. Never age or deteriorate.
7. Controlled uniformity of product.
8. All surfaces impervious to moisture.
9. Tougher—withstand rough handling.
10. Clear and flawless for easy inspection.

Owens-Illinois Glass Company, Hemingray Division, Muncie, Ind.

HEMINGRAY Glass INSULATORS

MAYDWELL

Glass Insulators

All Standard Numbers
For All Purposes

Made of high quality materials in a modern Pacific Coast plant producing an unusually tough glass to withstand all severe service conditions.

MAYDWELL & HARTZELL
INCORPORATED
Electrical Engineers
and
Manufacturers' Representatives
Los Angeles ★ San Francisco

Underground Transmission

Without Conduit

Note the air and moisture proof flexible coverings. Sealtite represents a distinct advance in parkway cable construction. It is more pliable than any other underground cable... and costs are considerably lower.

Write for booklet offering suggested uses and explaining long life.

SEALTITE

Parkway and Airport Cable with Maximum Flexibility by

PROVIDENCE

MAYDWELL & HARTZELL
INCORPORATED
ELECTRICAL ENGINEERS
and
MANUFACTURERS' REPRESENTATIVES
Los Angeles ★ San Francisco

Bragg Named Manager Of Pacific Power & Light

George T. Bragg, recently assistant to General Manager L. A. McArthur of Pacific Power & Light Co., Portland, has been appointed general manager. Mr. McArthur retains the vice-presidency and active supervision of matters of policy.

Born in Hood River, Ore., Mr. Bragg first joined the company as clerk in the

GEORGE T. BRAGG

Hood River office in 1916. His service with the company has been interrupted twice—first when he served with the U. S. Army during the World War, and again for four years while he attended the University of Washington, from which he graduated in 1924. Since then he has risen to chief clerk, to personnel manager, to assistant general manager, and last to general manager.

●

° NEW OFFICERS of the Los Angeles Electric club took office last month. They are Ralph A. Hopkins, president; Clifford Thorburn, Joe H. Pengilly and A. L. Stone, vice-presidents; W. A. Madden, secretary-treasurer, and Clem Purviance, sergeant-at-arms. Elected to the executive committee were B. F. Woodard, M. G. Sues, H. L. Caldwell, D. A. Smith and George A. Riley.

●

• E. S. LEE, director of the General Electric engineering laboratory at Schenectady visited the Pacific Coast during the past month, during which time he spoke in various localities on the research work which is being done at the laboratory.

●

• FREDRICK D. HEIGES, secretary to George M. Gadsby, president of the Utah Power & Light Co., died June 10, in San Francisco, where he had gone in an effort to recover from a three months' illness. Mr. Heiges was born in Springview, Neb., in 1900. He was graduated from the University of Utah. His mother, widow, daughter and infant son survive.

• PERSONNEL CHANGES in the commercial organization of the Southern California Edison Company, effective Aug. 1, have been announced by W. L. Frost, vice-president. John H. Mead, manager of Pomona division since 1932, has been appointed assistant division manager at Long Beach and will be succeeded by H. V. Busby, now assistant division manager at Santa Monica. W. P. Shaffer, now assistant division manager at Long Beach, has been appointed district manager at Covina, succeeding R. C. Hanna who is to retire Sept. 1. A successor to Mr. Busby at Santa Monica is to be named later. Mr. Hanna is retiring after more than 34 years of service with the company. Mr. Mead, Mr. Busby and Mr. Shaffer all have been members of the Edison commercial staff for many years.

●

• GEORGE W. MADISON, for many years supervisor of salesmen for Portland General Electric Co., has been appointed merchandise manager. Mr. Madison joined the Portland Company in 1927 as an appliance salesman. He was made supervisor in 1930.

Coincident with the promotion of Mr. Madison, Fred G. Starrett was made supervisor of merchandise salesmen. Mr. Starrett joined the company 14 years ago and for the past 10 years has been associated with the sales department, for the past 5 years as manager of the Portland Electric Store.

Succeeding Mr. Starrett as manager of the Portland Store is George H. Card who has also spent several years in the company's sales department, beginning as secretary to Mr. Micken.

●

• L. A. "BILL" WILLIAMS, assistant to Frank McLaughlin, president of the Puget Sound Power & Light Co., has been named manager of the company's northeastern district, with headquarters in Everett. Mr. Williams, who also held the title of promotion manager, will succeed Frank Walsh, who has been transferred to the company's northern division, with headquarters in Bellingham. Mr. Walsh, in turn, succeeds W. M. Bird, recently chosen president of the Western Public Service Co., Neb.

...about the Trade

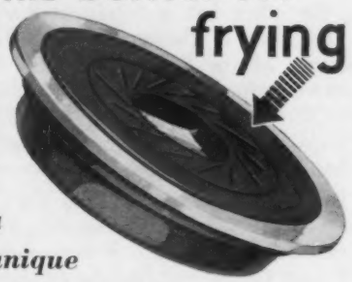
Buys New Fresno Appliance Store

Alfred F. Kramer has acquired the proprietorship of the Fresno Appliance Store at Van Ness Ave. and Tulare St., Fresno, for which he has been the manager under the ownership of Devlin-Drew Co., which orginally established the store. The store occupies a remodeled corner of the former Fresno Republican Building, is attractively decorated in modern treatment and is an ideal location for heavy traffic business.

Devlin-Drew Co. will continue to confine their distributorship to the wholesale field, and handling as previously refrigerators, radio and household appliances in thirteen central California counties. This company recently erected a one-story brick building at 718 F St., Fresno to enlarge its facilities to serve its many dealers throughout the valley.

Mr. Kramer, a resident of Fresno for over nine years, was former advertising and promotion manager for the merchandising department of San Joaquin Light & Power. He was also with the Westinghouse store and later manager of the appliance department at Radin & Kamp.

This burner for frying



a unique advantage of

CHROMALOX

Super-Speed ELECTRIC RANGE UNITS

Another point about the "Two-Burner-in-One" feature — and another reason why more ranges are coming through equipped with these units, and why power companies and electrical contractors are standardizing on them for replacement purposes.

Get the facts about the unfailing Sales Plan—write us.

EDWIN L. WIEGAND CO.
PITTSBURGH, PA.

Represented by

MONTGOMERY BROTHERS
911 Western Ave., Seattle, Wash.
1501 N. W. Kearny St., Portland, Ore.
61 Fremont St., San Francisco, Calif.
912 E. 3rd St., Los Angeles, Calif.

THE PETERSON COMPANY
1921 Blake St., Denver, Colo.

• STONE-RYALS ELECTRIC & MANUFACTURING CO., have moved their plant to 470 Natoma St. in the same block and across the street from the former location. Engaged as this company is in the development of electrically driven and operated production machinery of special types, as well as conducting a contracting and motor business, larger quarters with better facilities for development work have long been felt to be needed. Among ingenious machines developed by the firm are a hand saw welding rig, a butter wrapping machine, a fruit basket rim welding device, and a twisted paper ice cream dispensing container.

•

• SMALLCOMB ELECTRIC CO., 507 East Seventh St., Los Angeles, for many years specialists in ventilation installation and design, have announced their appointment as agents for the Kisco line of electric fans for southern California.

•

• MARION electric ranges, a product of the Rutenber company, are now being distributed in southern California by Associated Wholesale Electric Co., according to C. D. Russell, president. After a series of sales meetings enthusiastic reception of the new range line was accorded by the many dealers of this wholesale concern.

•

• SUNSET ELECTRIC CO., wholesalers of Portland, Ore., recently leased a three-story building at Tenth and Glisan Sts. where the electrical appliance division now has elaborate sales rooms for the display of the complete line.

•

• CARL ROHER, electrical dealer of Monterey, Calif., has moved to a new and more attractive store with enlarged display at 145 Franklin St., Monterey. A complete electric kitchen and General Electric appliance display is now provided in his new store.

•

• PAUL R. PRIETSCH, Pacific Coast representative of Proctor & Schwartz Electric Co., has announced the moving of his office to 639 Mission St., San Francisco.

•

• PREST ELECTRIC CO. in San Bernardino has taken its entire stock, moved into a two-story mansion at No. 856 on palm-lined E Street, and adopted for slogan, "The House Electric." R. O. Prest, who operates the firm, has devoted the entire building to sales and display rooms. The firm has been established in San Bernardino for 19 years.

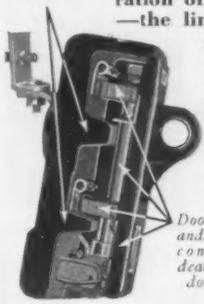
A Better Enclosed Cutout

S & C
Type SEB Semafor Box Cutout
50 and 100 Amps. 5000, 7500/12,500Y Volts

Serving and working with distribution engineers—experience gained in checking S & C Cutout performance on scores of power company lines —all have had their part in the development of the improved S & C Enclosed Semafor Cutouts.

- ***Short circuits and overcurrents of low capacity are cleared faster—***
- ***Gases and fuse link cable vent more freely—***
- ***Contacts are stronger.***
- ***Fuse tube and tube contacts are a part of the removable door.***

Webs give mechanical re-enforcement and improved electrical characteristics



During fuse operation there is positive spring separation of fuse link terminals —the link is pulled *straight* out and the door (spring actuated) drops open. In this position the door, hinge, fuse tube and fuse tube contacts are dead . . . . *safe for re-fusing.*

Door, fuse tube and fuse tube contacts are dead — when door is open.

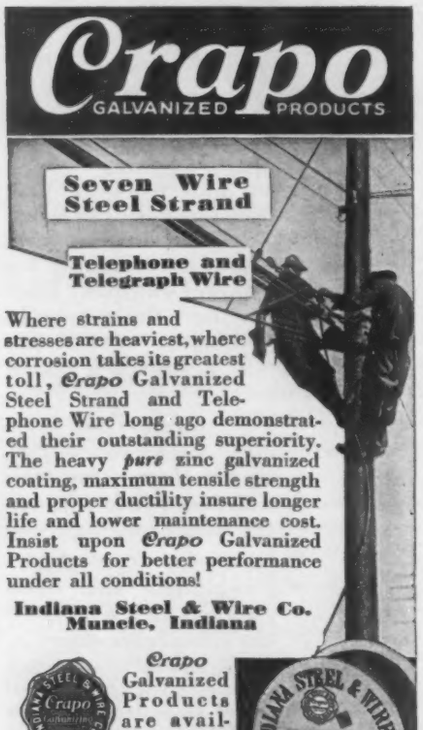
Ask for copy of new Bulletin 215-A.

SCHWEITZER & CONRAD, INC.
4435 Ravenswood Ave., Chicago, Ill.

WESTERN REPRESENTATIVES
San Francisco: Geo. E. Honn, 420 Market St.
Los Angeles: Farnham & Cunningham, Edison Bldg.
Seattle: T. S. Wood, 220 Ninth Street, N.
Salt Lake City: Ambler & Riter, Kearns Bldg.
Mfg. in Canada by Powerlite Devices, Limited, Toronto, Canada

REG U.S. PAT OFF.

• THE GUTE COMPANY, LTD., 269 Seventh St., San Francisco, recently was appointed representative in Northern California for the M. H. Rhodes, Inc., New York and Hartford, makers of "Mark-Time" switches, a full line of time delay switches comprising some 10,000 different types and combinations. Two classes of switches are manufactured, first for contractor installation in homes and buildings, and the others for the use of manufacturers to be incorporated in appliances for the automatic timing of operations.


Crapo
GALVANIZED PRODUCTS
Seven Wire Steel Strand
Telephone and Telegraph Wire
Where strains and stresses are heaviest, where corrosion takes its greatest toll, Crapo Galvanized Steel Strand and Telephone Wire long ago demonstrated their outstanding superiority. The heavy pure zinc galvanized coating, maximum tensile strength and proper ductility insure longer life and lower maintenance cost. Insist upon Crapo Galvanized Products for better performance under all conditions!
Indiana Steel & Wire Co.
Muncie, Indiana
Crapo Galvanized Products are available in all standard grades and sizes.
INDIANA STEEL & WIRE CO.
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PROFESSIONAL SERVICES

ELECTRICAL TESTING LABORATORIES

Electrical Photometrical, Chemical and Mechanical Tests. Inspection of Materials and Apparatus at Manufactory.

80th St. and East End Ave., New York

ARTHUR R. KELLEY
CONSULTING ENGINEER

Reports and Valuations, Public Utility Industrial Properties

Edison Bldg. Los Angeles

Strategy Board

Advertising plans and promotion are under discussion here when Leonard Hobbs, left, and Fred Smoot, right, discuss with advertising man Fred Rea the program for Smoot-Holman publicity. Mr. Smoot is son of the founder of the company and expects to go to Texas to open territories for the products of his company, after having spent several months in San Francisco

●

Frigidaire Parts Made Available to Dealers

Frigidaire parts may now be obtained from the Frigidaire Corp. as the result of a plan adopted by the company which follows a trend developed in the automotive industry. The action grew out of the insistent demand of specialty dealers for permission to use genuine Frigidaire parts, according to Virgil A. Hetzel, installation and service manager.

"This new development will in no way affect our present dealer service organization," Mr. Hetzel said. "But it will augment Frigidaire service to the extent that users who wish to patronize service dealers who have served them in the past now will be able to have genuine parts used in their units."

After making allowances for obsolescence, Mr. Hetzel said, there still remain more than 3,000,000 Frigidaire installations throughout the United States.

●

• RADIO SERVICE at the Wolf Radio and Electric Co., Portland, is being managed and supervised by Ed Fischer, newly appointed to the position, after conducting his own radio shop in Portland for several years.

●

• ELECTRIC SUPPLY Co. has opened in Sacramento, at 711 M St., an uptown location with 8,000 sq. ft. of floor space. With a complete stock of radios, radio parts and appliances the new house will carry forward the service previously conducted only in Oakland, where it pioneered in 1923. Eda N. Watkins is manager.

●

• EGGE ELECTRIC Co. recently moved from 2222 East Fourth St. to 1147 East Fourth St., Long Beach, Calif.

Spokane Store Has Gala Opening

• Brown-Johnston Co. in Spokane attracted 10,000 visitors for opening day of its store at N118 Lincoln St., described as having everything new but the location. A $100,000 display of newest electrical merchandise was illuminated in a house remodeled at a cost of $15,000. So great was the crowd that President Eric A. Johnston and 40 aides called in six employees of the Washington Water Power Co. to assist in the lamp department.

No merchandise was sold during the 12-hour open house, but much was given away, topped by a Norge refrigerator and Zenith radio, which were first and second prizes to winners of a slogan contest. Services featured in preliminary advertising included a quick-service repair department, a contracting department equipped to handle the smallest to the largest job, air-conditioning counsel, a model kitchen, and entire rooms devoted to the display of lamps.

Now maintained separately is the Brown-Johnston Wholesale Co., occupying 36,000 sq. ft. of floor space at S. 123 Wall St.

●

• SALMON, IDAHO, saw the opening of the Idaho Power Co.'s new office and showroom, a modernistic front and modern interior filled with electrical appliances, recently. Located on Main St., the office has a dominant position in the town of Salmon. Ralph Irvin, manager of the Salmon division, held a special opening and open house to show the complete line of electrical appliances on display in the new quarters.

●

• INGLEWOOD REFRIGERATION Co., formerly at 126 North Market St., Inglewood, has moved into a new store at 202 East Queen St., Inglewood, adding a complete line of appliances to the refrigerators formerly carried exclusively.

Classified Section

• COST of undisplayed classified ads is 5 cents a word, minimum $1.00 insertion. Box numbers in care of our San Francisco office count as 10 words additional in undisplayed ads.

• RATES per column inch of displayed ads is $3.75.

• ALL classified ads are payable in advance.

ELECTRICAL WEST 883 Mission Street San Francisco, Calif.

POSITION WANTED—Electrician, has constructive record in generating and substation operating, also transmission and distribution experience. Familiar with building maintenance. Able to furnish A-1 references. Single. Age 26. Native born with good background and education. Desires position anywhere with prospective future. Address Box 75, Electrical West, 883 Mission St., San Francisco, California.

...in New Equipment

Soft Rubber Plugs in Color

Soft rubber plugs are being offered in five colors by the wire division of U. S. Rubber Products, Inc., 1790 Broadway, New York. Shapes are oval and flat. Another plug in the line, designed for vacuum cleaners, but useful with other appliances, includes a finger grip to facilitate plugging in and out. Approved by the Underwriters Laboratory, all plugs are marketed as an integral part of the cord with connections soldered.

●

Steam Accessory for Casserole

Steam cookery is brought to the Nesco electric casseroles, series B-40 and B-50, by a new unit introduced by National Enameling and Stamping Co., Milwaukee, Wis. The steamer, which nearly doubles the capacity of the casserole, may be purchased as an addition to casseroles in use, or with the casserole as a complete unit. It seats above the casserole, allowing dry cooking of vegetables by dry natural steam from a roast below, and is designed so that cooking of meat and vegetables will be completed simultaneously.

●

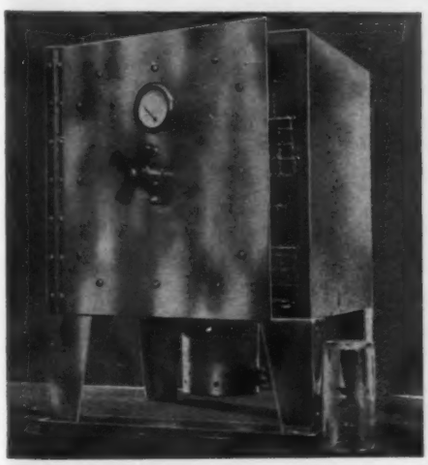
Low Cost Voltage Regulator

Low installation cost is claimed for an improved feeder-voltage booster introduced by Westinghouse Electric & Manufacturing Co., for circuits where close regulation by the standard station-type regulator is not necessary. This, the type BR, provides 5 or 10 per cent boosts, in one or two steps, as desired, during heavy load periods. The standard type BR is outdoor, single-phase, with hanger irons for pole mounting. For three-phase, three-wire circuits, two units may be connected open delta; for three-phase, four-wire circuits, three units star.

●

Protection for Diners

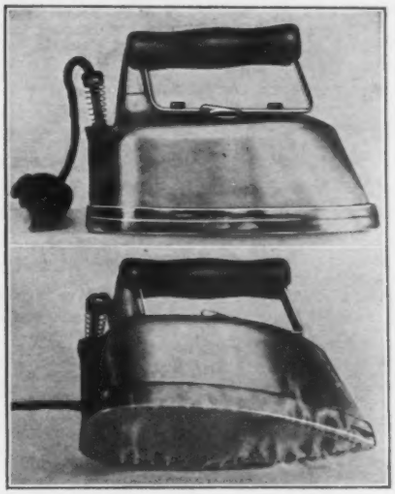
Attracting new business to many refreshment shops is the electric sterilizer announced in the *Electrical Times* bulletin of the Southern California Edison Co. Ltd. Glasses and dishes are steam cleaned in the sterilizer, which quickly, silently and efficiently attains temperatures in excess of 212 deg. No soap, cleansing compounds or towels are required for its operation. A sign for display in conjunction with the unit informs the refreshment counter customer: "For Your Protection! Glasses, silverware, etc... Sterilized by Steam..."



Hand Iron Steams and Presses

A miniature steam pressing plant for the home is the Steem-Electric iron, marketed by the Steem-Electric Corp., 615 South Sarah St., St. Louis, Mo. Heated like the conventional iron, the steem-electric carries 1½ pt. of water, which is ejected as steam through holes in the ironing surface.

Labor saving and better pressing are claimed for its performance. Because it can be left on cloth for 2 min. without causing scorching, it can be operated without lifting from the board. Sprinkling is eliminated and quick drying attained. Interesting are figures credited by Steem-Electric to the National Board of Fire Underwriters, viz.: 70 per cent of all fires in the home are caused by neglected irons; the average family destroys from $14 to $18 worth of clothes in one year. To this Steem-Electric adds its iron will stand on clothes for 90 min. without burning; costs less than the average loss per home per year.



New Portable Cooking Table Introduced

The newest application of the portable electrified table idea is a new Kook-Kart recently designed by Henry Bosch, Jr., and equipped with his patented retrieving appliance cord. It has a table top 18 x 34 in. by 30 in. high intended to serve as a portable combination service table and shelf unit, used auxiliary to the family table. It can also be used elsewhere throughout the house. It connects to any convenience outlet through the medium of 10 ft. of No. 14 cord and is equipped with two No. 16 gauge Boschords (or retrieving cords) controlled by double pole switches. It also has two convenience outlets, a pilot lamp and a bimetal circuit interrupter to protect the entire circuit. It is intended to sell in the vicinity of $87.50 list and is manufactured by Bosch Products Co., San Francisco. An ingenious arrangement of drawers for holding silver, linen and other accessories makes it possible to draw them from either side of the table. Shelf space is provided for carrying the appliances when not in use.

●

Devices for Portable Cable

Portable cable accessories, including high-voltage cable couplers and molded terminals for all voltages, are announced by General Electric Co., Schenectady, N.Y., in response to demand created by increased use of portable equipment. Couplers are rated 100 amp., and socket construction permits bringing out shielding tapes or ground conductors. Terminals are of molded rubber designed for terminating at the load or energy source.

Half-Ton Air Conditioner Packed into Tiny Unit

A ½-ton window-type air conditioner is being manufactured by the Thermal Units Manufacturing Co. Designed to fit any residence window, or that of an hotel room or small office, the unit weighs 240 lb., operates on ½ h.p., measures 26x24x16 in.

Room air is drawn through the large grill at right in the illustration and discharged through the grill at top. When mounted, the window outside the unit and a partition within separate these from the grill shown at left, which is the outside-air intake to the condenser. This air is also discharged outside.

Feature of the compressor is its "V8" construction. Two cylinder housings are mounted rigidly at 70 deg. Within these, master cylinders with four bores rotate. Thus four double pistons, each pair rigid at 70 deg., each perform two double cycles per revolution. For this design is claimed long life and freedom from vibration.

●

High Voltage Contactor

Oil blast arc interruption is employed in a new high-voltage alternating current contactor which the General Electric Co. offers in the rating, 200 amp. at 2,200 to 4,600 volts. The contactor will interrupt 50,000 kva. Intended for use in completely oil-immersed controllers requiring moderately high interrupting capacity, the contactor provides inverse-time protection against sustained overloads and time-delay under-voltage protection. An instantaneous overcurrent relay trips mechanically on short circuit.

●

Discharge Tubes Improved

Electronic surge protection is offered in a new line of gaseous discharge tubes by Sundt Engineering Co. of Chicago, Ill., affiliate of Littelfuse Laboratories. Tubes are rated for use in 125, 250 and 500-volt d.c. circuits. Tubes are calibrated to place no load upon the normal circuit, but when the surge rises above normal, the tubes ionize, shunting out the surge. Placed in shunt with the coil or magnet between the switch and coil, they will reduce coil potential to normal within .010 to .1125 sec. after circuit opening.

●

Add to G.E., Hotpoint Washers

Two wringer type washers, 9-lb. capacity, have been announced by General Electric Co's appliance and merchandise department as additions to the G.E. and Hotpoint washer lines. The G.E. model carries the "one-control" wringer, the Hotpoint a trough-type wringer.

Enameling steel, finished in white lacquer, are used in the tubs, which are of 23-in. diameter by 14-in. depth. Skirts decorated in cadmium conceal the pump and contribute to appearance. Both are equipped with ¼-h.p. motors, composition castors and side-mounted hand controls.

...in Trade Literature

AIR CONDITIONING men and others interested will find a useful guide in the U. S. Department of Commerce Bulletin No. 7833 entitled "Condensed List of Sources of Information on Air Conditioning." The sources covered include Government reports; trade association, institute and society reports; British and American trade magazines, and addresses, books, pamphlets and releases. It is issued by Andrew W. Cruse, chief of the Electrical Division, Bureau of Foreign and Domestic Commerce, which maintains western offices in Dallas, Denver, Houston, Los Angeles, Portland, San Francisco and Seattle.

LIGHTING for automobile service stations is given comprehensive treatment in a Benjamin Electric Manufacturing Co. booklet entitled, "What Every Service Station Operator Should Know About Lighting." Lighting layouts and check charts for illumination of grounds, station canopies, pump islands, signs, etc., are among the subjects included, followed by listings of Benjamin equipment.

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3 Barclay St., New York City — Works: Bethlehem, Pa.

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★ INSTRUMENT AND CONTROL SWITCHES

★ SWITCHGEAR ★ RELAYS

Sales Agents: Electric Material Co., San Francisco and Los Angeles. J. G. McDougall, Seattle. Mark G. Mueller, Denver. T. E. Geary, Omaha

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Westinghouse Elec. & Mfg. Co.
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O Konite-Callender Cable Co.
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Rockbestos Products Corp.
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Pure Iron Culvert & Mfg. Co.
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Westinghouse Elec. & Mfg. Co.

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Union Oil Co.

Oil, Transformer & Switch
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Graybar Electric Co., Inc.
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Porcelain
Standard Elec. Porcelain Mfrs.

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Mountain States Power Co.
Northwestern Electric Co.
Pacific Gas and Electric Co.
Pacific Power & Light Co.
Portland General Electric Co.
Puget Sound Power & Light Co.
San Diego Cons. Gas & Elec. Co.
San Joaquin Light & Power Corp.
Southern California Edison Co. Ltd.
Utah Power & Light Co.
Washington Water Power Co.

Pullers, Slack
A. B. Chance Co.

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Ranges
Edison Gen. Elec. Appliance Co.
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Kortick Mfg. Co.
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Elec'l Testing Labs.
McGraw-Hill Book Co.
Northwest Elec. Light & Power Association
Pacific Coast Elec'l Ass'n
Pacific Coast Elec'l Bureau

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Pacific Wire Rope Co.

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Hubbard & Co.
Westinghouse Elec. & Mfg. Co.

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Roller-Smith Co.
Square D. Co., Inc.

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Kearney Corp., James R.
Pacific Elec. Mfg. Corp.
Schweitzer & Conrad, Inc.
Westinghouse Elec. & Mfg. Co.

Switches, Fuse
General Elec. Co.
Kearney Corp., James R.
Schweitzer & Conrad, Inc.

Switches, Heater
Bryant Elec. Co.
General Elec. Co.
Hart Mfg. Co.

Switches, High Tension
James R. Kearney Corp.

Switches, Meter Test
General Elec. Co.
Meter Devices Co.
Square D Co., Inc.
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Hart Mfg. Co.
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Colt's Patent Fire Arms Mfg. Co.
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Westinghouse Elec. & Mfg. Co.

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890-2

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Wattmeters
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General Elec. Co.
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Roller-Smith Co.
Sangamo Elec. Co.
Westinghouse Elec. & Mfg. Co.
Weston Elec. Instrument Corp.

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Pelton Water Wheel Co.

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Columbia Steel Co.
Crescent Ins. Wire & Cable Co.
Crucible Steel Co.
General Cable Corp.
Hazard Ins. Wire Works
Keystone Steel & Wire Co.
National Elec. Products Corp.
The Okonite Co.
Providence Insulated Wire Co.
Rockbestos Products Corp.
United States Steel Corp.
Westinghouse Elec. Supply Co.

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Associated Sales Engineers
Bryant Electric Co.
Gen. Elec. Supply Corp.
Graybar Elec. Co., Inc.
General Elec. Co.
Graybar Elec. Co., Inc.
Hart Mfg. Co.
Indiana Steel & Wire Co.
Maydwell & Hartzell, Inc.
Pacific Wire Rope Co.
John A. Roebling's Sons Co.
Westinghouse Elec. & Mfg. Co

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Again we Say– CONGRATULATIONS!

ELECTRIC APPLIANCE SOCIETY

ON YOUR

JULY REFRIGERATOR CAMPAIGN

SPENDING $10,000.00 to help dealers sell $600,000.00 worth of electric refrigerators during July sounds like a good investment, to say the least. And judging by the success of your previous campaigns, it probably will be. The P. G. and E. is happy to have had a part in mapping out this program and helping to finance it. If dealers show half the enthusiasm and determination evidenced by the manufacturers and distributors, the goal is sure and the whole trade will enjoy the biggest refrigerator month in history.

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

Owned, Operated and Managed by Californians

Advertising in 87 newspapers

•

Retail salesmen's contests

•

Life-size floor and window displays free

•

29 pre-campaign selling schools

•

Free mat and clip-sheet service

•

65 co-op floor displays in P. G. and E. offices

•

Specially posed publicity photographs

•

Territory-wide field promotion

•

Publicity stories for newspapers

•

Half million P. G. and E. bill-stickers

•

50,000 refrigerator booklets

•

39 hostess programs in P. G. and E. offices

EW-107-736

BONUS CASH IS STILL BEING SPENT.

★ ★ ★ ARE YOU GETTING YOUR SHARE?

★ Bonus checks totalling millions of dollars continue to be spent right now and according to a national survey, 26%, or nearly $520,000,000 is going for homes, farms and home equipment.

Here is your most potent sales opportunity . . . thousands of veterans with cash to spend . . . waiting to be sold the particular commodity that will bring them the most pleasure and permanent satisfaction.

No investment can give more lasting value than modern electrical equipment. Not only does it increase the money value of the home but it opens the door to a richer, more abundant life.

We in the industry know this . . . we've been preaching it for years. But we can't afford to assume that the veterans know it, too. It's up to us to see that they are familiar with the electrical story; make them want the advantages that only an electrically equipped home can give.

The opportunity to tap a $520,000,000 cash market will not come again soon. Plan now to get your share.

Pacific Coast Electrical Bureau

601 West Fifth Street
LOS ANGELES, CALIFORNIA

447 Sutter Street
SAN FRANCISCO, CALIFORNIA